

SOUTHERN TEXTILE BULLETIN

VOL. XXIII.

CHARLOTTE, N. C., THURSDAY, MAY 11, 1922.

NUMBER 11

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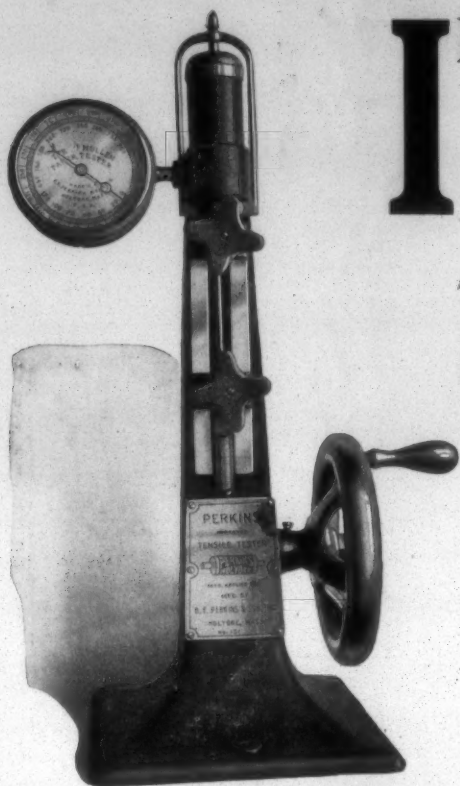
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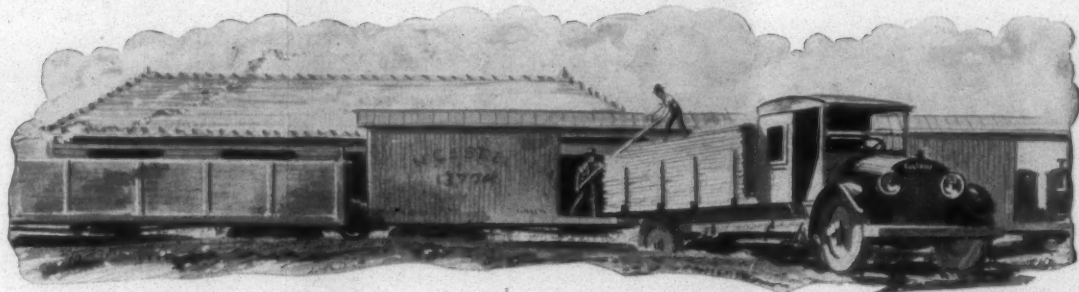
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VOL. XXIII.

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Modern Shop Practice In The Building of Revolving Flat Cards

Before taking up the details of manufacture of the modern revolving flat card, it may be of interest to trace briefly the development of this machine in order that one may better appreciate the extent to which the art of its manufacture has been developed.

The primitive method of carding or cleaning cotton fibers was by means of hand cards which consisted of brushes made of short pieces of wire instead of bristles, the wires being fastened into a sheet of leather at a certain angle, and the leather fastened into a flat piece of wood about twelve inches long by five inches wide and provided with a handle. The cotton was spread upon the surface of one of these cards and then combed with another until all the fibers were straight, after which it was stripped off in the form of a roll.

The first attempt to card by the rotary motion of a cylinder was covered by the English patent taken out by Lewis Paul in 1748, but it was not until 1790, when Samuel Slater, an Englishman who had settled in Pawtucket, R. I., built the first cards to be operated in this country that carding or cleaning cotton fibers by machine was introduced here.

In 1857 Evan Leigh produced a card embodying all previous developments and having the additional advantage of being equipped with a mechanical device to automatically strip the tops or flats. This type, known as the revolving flat card, was destined to come into almost universal use and is today the standard of the world for carding cotton fibers. Although many modifications and improvements in the construction of this machine have since been made, its fundamental features remain the same.

In Fig. 1 is shown a revolving flat card as it is built today. While there are several different makes of these machines, varying somewhat in de-

(*By F. E. Banfield, Jr., Newton Upper Falls, Mass.)

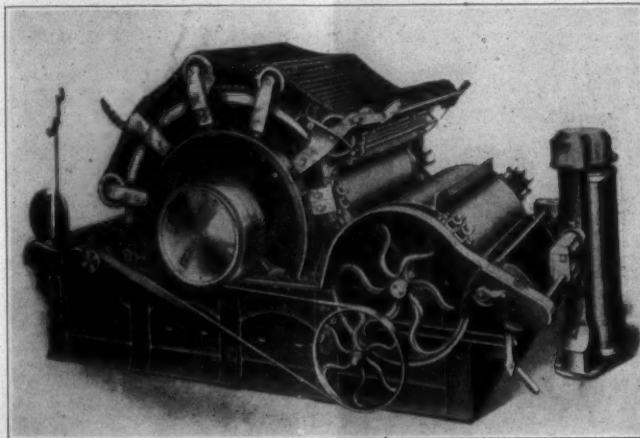


Fig. 1 Modern Revolving Flat Card



Fig. 2 Cylinder Molding Floor



Fig. 3 Card-Side Molding Machines

tails of design, the essential features and characteristics are the same in all.

It was not until the year 1884-1885 that American manufacturers came to realize that the efficiency of this type of card was at least 100 per cent higher than the best of the wooden-top flat cards. As soon as this advantage was made apparent new design for his product in place to mill owners the demand for these cards became large, and during the next decade English cards of this type were brought into this country by the shipload. It therefore became necessary for the American machine manufacturer to adopt this of the old-style machine, in order to compete successfully with the English builders. He was not prepared to manufacture this radically different and highly developed machine. Many of its component parts were so designed that they were not readily adapted to machining on standard commercial types of tools. A start was made by purchasing from England such machines as were available, but it soon became apparent that it was up to the American manufacturer to devise and build special-purpose tools and equipment if he hoped to succeed against the English competitor.

It is the purpose of this paper to show some of the results of the efforts in this direction by describing some of the more important machines which have been developed for this work. In designing these machines the one object which has been constantly borne in mind has been that they must not only do the work cheaper, but it must be of better quality.

One of the first requisites for economic machine shop production on a quantity basis is carefully molded uniform castings; otherwise satisfactory work cannot be obtained from the jigs and fixtures employed in holding the castings for the subsequent machining operations. For the average card casting with its more or less deep draws and flanges, the stripping plate type of molding machine has been found best suited. An iron pattern once properly fitted to a stripping plate is good for al-

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Abstract of paper presented at the Spring Meeting, Atlanta, Ga., of the American Society of Mechanical Engineers.

most a countless number of castings, and thus made their accuracy in no wise depends upon the skill of the molder. In fact, an ordinary laborer can in a few days be taught to make as good castings from a stripping plate pattern as a skilled molder who has served his time in a foundry.

Developments in molding machines in recent years have made it even possible to adapt the cylinder and doffer patterns to stripping plate machines and in Fig. 2 we have a view of the cylinder floor showing some of these machines and illustrating the method by which the molds are built up. This equipment consists of four jolt stripping plate machines, the drag, the cope, the core and cheek, the first two being seen at the center and the right of the photograph. The molds are shown from the right to left in their successive stages of completion. To provide for the flanges on the inside surface of the cylinder, the core is built up in four sections, one of which is seen suspended from the overhead crane by which it is handled. Each section is built upon a cast-steel arbor which serves as a means of handling and also provides a support for the upper cores. After the cores are in place the check is lowered into position and the mold is then closed with cope and ready for pouring. This is done through a central sprue passing down through the cores and thence through radial gates in the drag to the cylinder wall.

Fig. 3 is a view of the card-side floor showing the pattern mounted on a stripping plate machine at the right. The drags are made from this machine while the copes are rammed up on the plate at the left. In the foreground may be seen two drags ready for the cores to be set. Over 70,000 molds have been made from this pattern and it is still in serviceable condition.

After pouring, the molds are shaken out over gratings in the floor, through which the sand falls into hoppers located in the basement. Serving these hoppers is the sand-mixing machine or car, shown in Fig. 4. A hopper is located on the right from which a slow-moving feeder delivers the sand to the hopper of a bucket elevator mounted on the car. This elevates the sand to the mixing machine where it is riddled, tempered and mixed and then dropped on to a belt conveyor which delivers it to the bucket elevator at the left ready for the hopper over the molding floor above. This sand car is operated on a track, running the length of the foundry and so located that the car serves all of the hoppers in the bay in which it operates. This equipment does away with the laborious work of shoveling the sand and it also mixes and prepares it much more thoroughly than is possible by hand, thereby producing not only better but cheaper castings.

For transportation of materials, an electrically operated monorail system has been installed. Not only are the cars electrically driven but the switches are also operated in this manner, being controlled by a button in the operator's cab. Special

cars are also arranged with ladles for carrying the molten iron from the cupola to the molding floors, and arranged so that the tilting of the ladle for pouring is done by the operator of the car. This system has aided materially in reducing the cost of transportation as well as increasing the capacity of the foundry by speeding up the work.

Upon the solid construction, the true running and the perfect balance of the card cylinder, depends to a large degree the successful operation of the card. Its surface is covered with card clothing which in turn is set to run but a few thousandths of an inch away from the surfaces of the lickein, the flats and the doffer, and it is essential that this small clearance be accurately

maintained as otherwise serious damage might result to the clothing. This cylinder has a diameter of 50 in., a length of 40 or 45 in., according to the width of the card, and runs at a normal speed of 165 turns per minute. It is the largest of the parts entering into the assembly of the card and its machining operations are such as require the use of several of the special single purpose tools heretofore mentioned.

The first operation on the cylinder consists of squaring up and boring out the ends to receive the spiders. For a long time this was done on boring out lathes designed and built for this purpose in England, several of which were purchased and brought to this country.

Then in order to obtain an increased production and at the same

time eliminate the possibility of inaccuracy, it was decided that a milling machine was the type best suited to produce these results. Accordingly the special machine shown in Fig. 5 was designed and built for this work. The cylinder is held on an expanding arbor or chuck, one end of which carries the feed gear corresponding to the rack of the ordinary milling machine table. The cutters are mounted on the inner ends of two spindles, one on each side of the machine, these spindles, in turn, being driven by spur gears from a motor-driven cross-shaft at the rear. The spindles are mounted in quills so arranged that they may be fed into the ends of the cylinder to the desired depth after it has been rolled into place. A sliding-drive pinion is then moved into mesh with the feed gear on the chuck; this pinion being driven from the cross-shaft down on the side of the machine. A tight and loose pulley on this shaft receives a belt from a pulley on the motor shaft, the feed being started and stopped by the shifting of this belt. The arbor on which the cylinder is mounted is held in position in the horizontal U-shaped bearings of the machine by means of the steel wedges shown. The photograph shows the cylinder ready to be rolled into position. The head carrying the cutter spindles is adjustable and when once set for a certain diameter of cutter, work of uniform dimensions is produced and is not dependent on the care of the operator, who merely loads and unloads the machine. This machine is capable of finishing one cylinder per hour, one-third the time required on the previous lathes.

When bored or milled out the cylinder is taken to the roughing lathe (Fig. 6) where it is held by the bored ends and a roughing cut is taken across its outer surface. To convey an idea of the size of this machine, it may be of interest to state that the head and tail-stock spindles are both 30 in. in diameter, the former carrying a driving gear 6 ft. in diameter. The spindles are of cast iron and run in cast iron bearings, which have shown no appreciable wear during ten years of continuous service. The tool block carries six tools spaced at equal intervals so that each tool travels but one-sixth of the length of the cylinder, the entire surface being finished by this movement.

A spider is then driven into each end of the cylinder where it is securely bolted and doweled in place. The holes are then line-reamed to receive the shaft, which is pressed into place in a heavy horizontal power press, 0.0005 in. being allowed for the forced fit. As a further precaution, a 5/8-in. dowel pin is driven through the hub of the spider and shaft at the driving end. This method of construction obviates any possibility of the shaft becoming loose from long-continued operation and insures a true-running cylinder.

It is then mounted on its own bearings in a special finishing lathe where a continuous chip is taken from one end to the other with a single tool, after which it is ready

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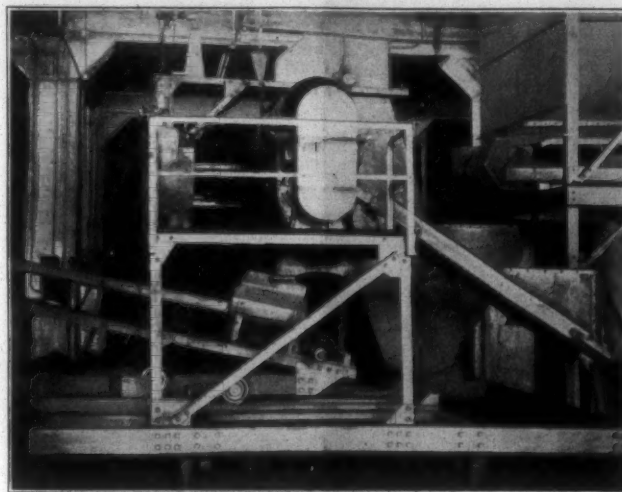


Fig. 4 Hand-Mixing Machine

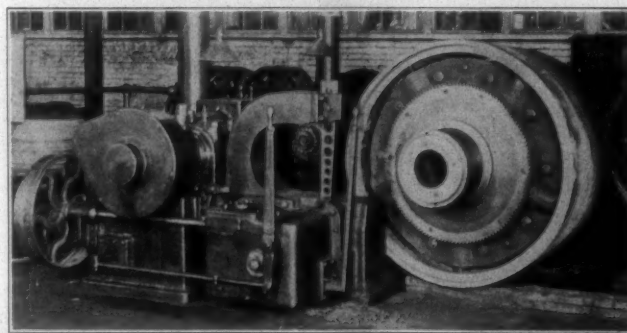


Fig. 5 Cylinder-End Milling Machine

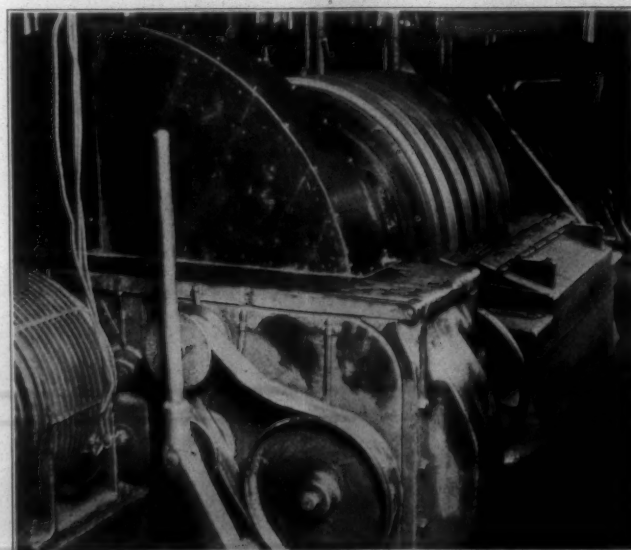
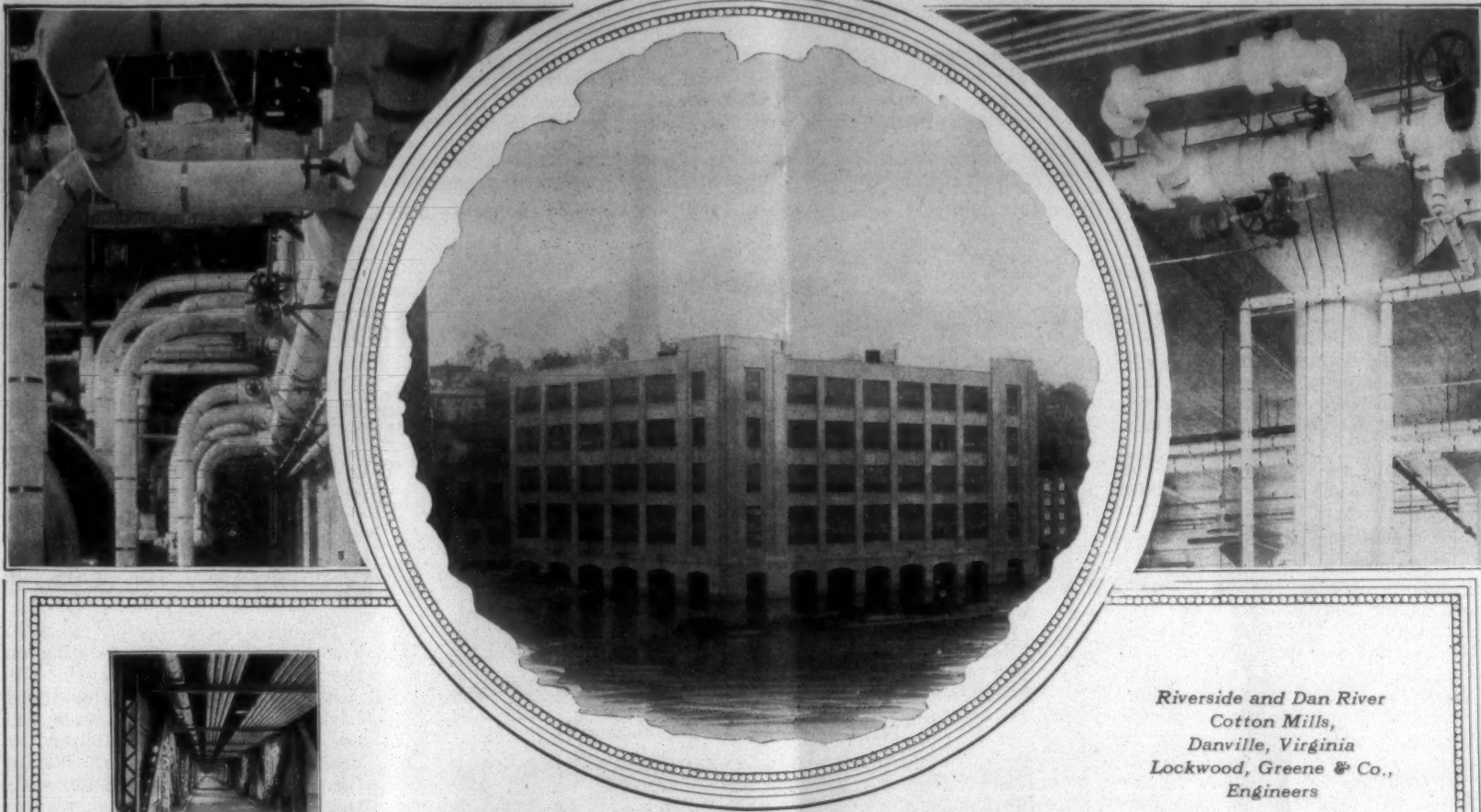


Fig. 6 Cylinder Roughing Lathe



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Modern Shop Practice in the Building of Revolving Flat Cards.

(Continued from Page 4)
to be drilled for the wooden plugs which are driven into its surface and to which the clothing is tacked. This drilling operation is performed in the horizontal gang drilling machine shown in Fig. 7. The drills used here are of the flat type and so shaped as to drill and ream a tapered hole suitable for receiving the wooden plug.

After plugging, the cylinder is carefully ground on a special cylinder grinder. Operations on the spider, consisting of boring and reaming the hub, of turning the outside circumference to size and of facing one side of the rim, are done on a boring mill so equipped that all of these operations may be performed at one setting of the work.

Finishing the Shafts.

The shafts used in the cylinders and doffers are of cast iron and each end is finished to three different diameters, one to fit the spider, one the bearing, and the third, or outer one, the pulley. For rough-turning these shafts the special machine shown in Fig. 8 was developed to turn both ends of the shaft at the same time. As will be seen, the central head carries a hollow spindle driven by a gear on the main driving shaft at the rear of the machine. On each end of this hollow spindle is mounted a special concentric chuck for centering and gripping the casting to be turned. The tailstock spindles, one at each end of the machine, are arranged in horizontal turrets or drums which may be rotated in their respective heads and whose axes are located below that of the driving spindle. These turrets are also fitted with a rotating center drill, the driving gears of which are thrown into mesh as it is moved up into line with the axis of the shaft. The third position of the left-hand turret carries a stop which locates the work in the machine, while the corresponding position of the right-hand one is provided with an opening through which the work is passed into and out of the machine. Each carriage is provided with a front and back tool block, the former carrying two turning tools, while the latter carries a single inverted one. Thus, three tools are in operation at each end of the shaft, one for each of the three diameters.

The shaft then goes to a lathe equipped with two carriages, each of which is fitted with a tool block arranged with tools for squaring the shoulders to length. It is then ready for the grinder where both ends are carefully ground to size. After cutting the keyway for the driving pulley with a vertical end mill, the hole for the oil screw is drilled and tapped in the end and the shaft is completed, ready to be pressed into the cylinder.

The operations of finishing the doffer follow closely those of the cylinder, the rough-turning being done on the machine shown in Fig. 9, which greatly resembles the cylinder roughing lathe (Fig. 6). After the spider and shaft are in place, the doffer is drilled, ground, and

balanced in a manner similar to the cylinder.

The sides and arches of the framework of the cards are finished by special machines since the successful manufacture of these parts requires close adherence to accuracy in order to insure interchangeability and to reduce to a minimum the fitting required in the erecting

room. In order to secure a straight and even surface on which to erect the card and attain proper alignment of the bearings, the top surfaces of the sides are further finished on a special planer type of grinder carrying a vertically mounted motor-driven ring wheel.

The arch which is that portion of the frame carrying the stands which

support the flats and their driving and adjusting mechanism as well as the sheet-iron casing below them, is by the nature of its design, the most awkward as well as one of the most important parts of the card to machine. The proper settings of the different parts require the accurate location of the various spottings on which the stands are mounted. The first operation after squaring off the bottom of the feet is the milling of the outer rim, this being done on the machine shown in Fig. 10. The rotating drum carries a pair of these arches, one right and one left hand. As this drum rotates slowly the circumference of the rim of the arch is carried past the cutter, plainly seen in the photograph, while below this cutter, but hidden from view, are two face mills so located as to mill the inner and outer sides of the rim. Means are also provided for automatically changing the space between these two cutters to allow for the thicker portion of the rim on one side of the arch.

The final operations on the arch are accomplished at one setting on the machine shown in Fig. 11. The casting is clamped to the table in a horizontal position on its back and the pair of cutters mounted on the horizontal slide at the left side of the machine serve to mill the spottings to which the arch stands are bolted, while the pair of cutters carried on the vertical head in the center of the picture finish the spottings on both sides of the flange. In addition to these milling operations, the holes for the capscrews securing the stands in place are drilled and tapped. The table of the machine is revolved by hand to its successive positions under the horizontal cutters, while the vertical heads are free to swing about the central axis to any desired position. The locations of the various spottings and holes are all determined by tapered slots in the rim of the table into which plungers, mounted on their respective heads, are thrust to locate the spotting or hole to be finished.

Against the outer rim of the arch, the flexible bend, over which the flats travel, is held by its adjusting blocks. It is essential that this bend be close to the milled surface of the arch and its sides must therefore be true and even. The finishing of these sides is accomplished as in the case of the rim of the arch, by feeding the bend between two properly spaced face mills and removing the scale from both sides of the casting at the same time. This operation is shown in Fig. 12. It will be noted that this machine is of a type similar to some of the continuous milling machines which have been recently developed, where the loading and unloading is carried on while the machine is in operation. A rough casting may be seen entering the cutters, while in the rear the finished one is just coming into sight. The cutters are hidden from view in the cut, but are mounted on the ends of the spindles, one on each side of the machine. Large diameter pulleys for driving the cutters are mounted directly on the

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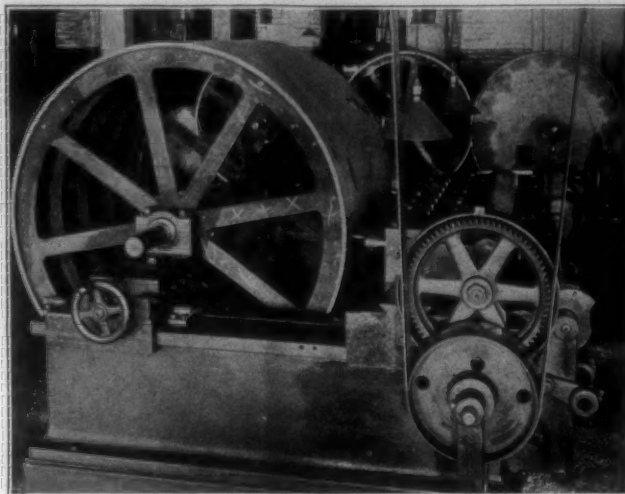


Fig. 7 Cylinder Drilling Machine

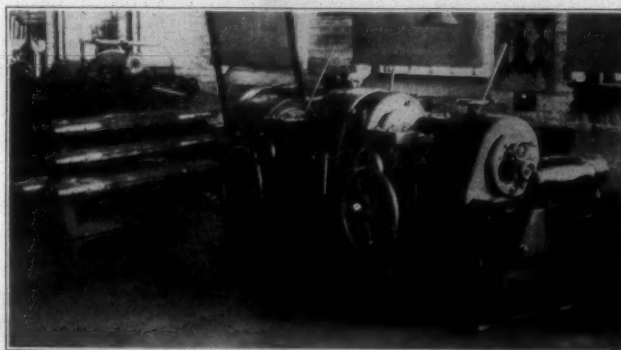


Fig. 8 Shaft Roughing Lathe

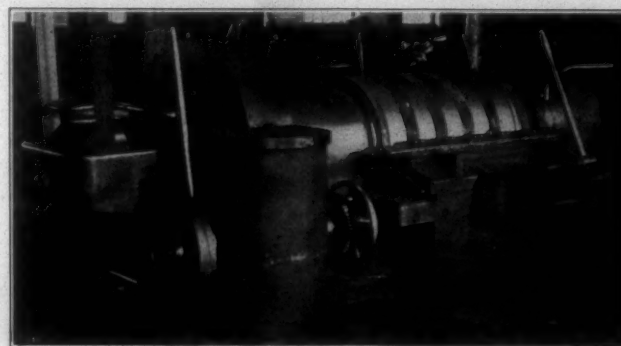


Fig. 9 Doffer Roughing Lathe

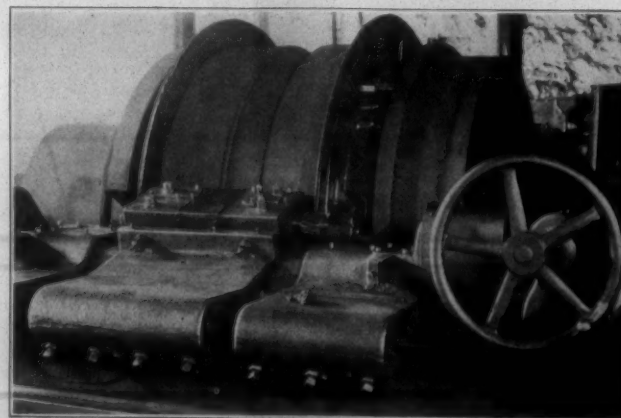


Fig. 10 Arch Milling

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The product of the sheep is used in conjunction with cotton in certain kinds of yarns and fabrics and for this reason the cotton mill superintendent finds it necessary to be familiar with wool and worsted. In cases where cotton is a part of the bed in which wool is mixed, care has to be taken to prevent oil from getting on the cotton fiber. The oil is essential to effective working of the wool fiber, owing to its physical structure and has to be introduced at the time the mix is made up. A layer of the prepared cotton is spread and then layers of cotton and wool alternately. This method permits the distribution of the oil on the wool layers. In cases where cotton, wool and mungo are used in the same batch, the two latter are dealt with together so far as oil is needed, and the cotton placed in alternate stratas between the two oiled layers. The oiling is necessary to properly lubricate the wool fiber as the scouring and preparing operations through which it has passed has removed the natural oily substance inherited from the sheep's back. After this natural oily substance is taken from the wool fiber in the scouring process, the fiber lacks adhesiveness and would be cast off as waste flyings in considerable proportions while passing through the cylinders of the carding machines. The wool fiber is coated with serrations or scales, as may be seen in Figure 1, and these surface conditions have to be rendered soft by lubrication which is not required in the case of the cotton fiber.

Wool Fiber is Not Hair.

Years ago the wool fiber was regarded as a fine hair, but the magnifying instruments have proven it to be more curly, flexible and wavy than the stiff, straight hairs of either the human being or animals. The growth of hair of the cow, rabbit and beaver sometimes finds its way into the lower grades of imitation seal skins and many other lines of textures. But the hair of these animals and most others is inferior to wool. The hair of the camel or the angora goat are different, for they are in a class by themselves and possess fine features that make it possible to use them in some very high grade textiles. The natural lustre and the felting properties of the wool fiber are due to the regularity and compactness of the exterior sheath seen in a scaly form in the enlargement. The elasticity and soundness of the fiber are due to the character of the numerous inner cells of which the filament is composed. The density of these interior cells retains the fiber in solid formation regardless of the strains and abrasions received by it in the processes of manufacture into yarns and cloths. The remarkable affinity that the wool fiber has for dye stuffs may be illustrated by the

fact that sometimes a batch of wool will absorb every particle of coloring substance from the dye liquor and leave the solution appearing like clear water. Silk will do this, too, but the silk fiber does not possess the same degree of permanency. That is, while the wool fiber will retain the absorbed coloring substance when subjected to certain tests, the silk fiber will not. If cotton is used in a mix with a batch of wool for dyeing, "bleeding" of the cotton portion has to be considered and guarded against.

If a design calls for certain colored threads of wool and cotton in the pattern of warp and filling

threads, care has to be taken in the scouring, fulling and finishing to prevent the running of colors from the vegetable fiber threads, thereby damaging the goods. The tubular construction of the cotton fiber does not admit of that free absorption of the dyestuffs intended for wool, and unless the dyeing is done separately there is likely to be trouble with the bleeding of the colors. It is the condition of the minute indentures on the surface of the wool fiber, overlapping one another, that constitute the color-absorbing and retaining capacity.

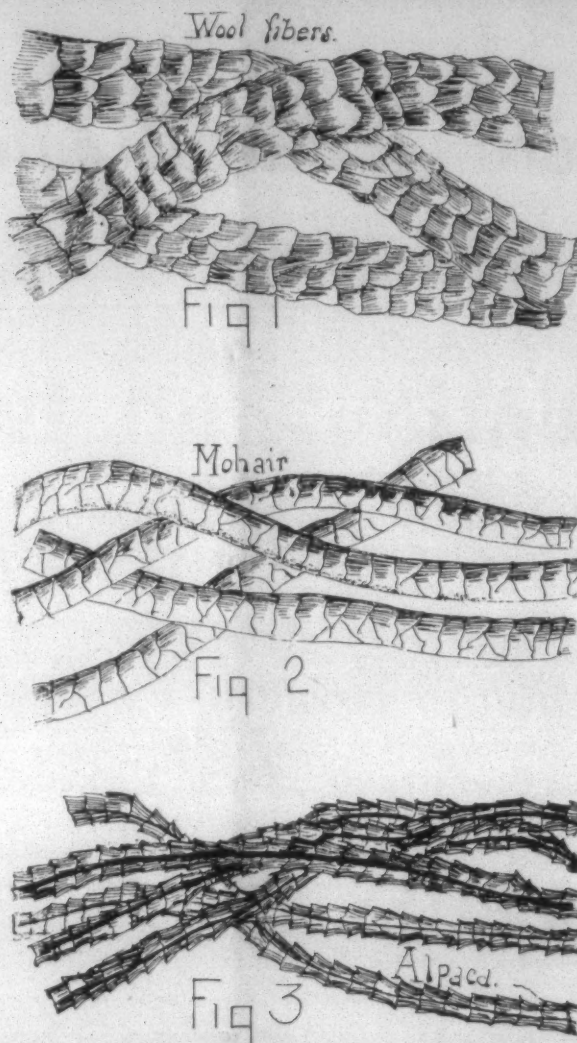
Mohair.

It is surprising what quantities of

mohair are used in textile mills at the present time. This is because the modern methods of preparing the fiber for manufacture into mohair yarns results in the production of a fiber almost as soft and silky as silk itself. In addition to this, the fiber is noted for its remarkable lustre. Some enlarged specimens of the fiber are shown in Figure 2. Mohair is from the fleece of the angora goat. The fibers are from 6 to 8 inches long, and although termed mohair, the title mowool would be better, as the fiber is more like wool than hair. It has the same curl, and fine development of scales found in the wool fiber. It also dyes well. The growth of long hair of the camel appears very similar in structural features to the mohair fiber when placed beneath the enlarging glass. The product of the camel, while used mostly in camel's hair shawls, also is used with wool, cotton and other fibers in the manufacture of yarns for the long, hairy backs of cloakings, overcoatings and similar fabrics.

Alpaca.

Enlarged views of some alpaca fibers are shown in Figure 3. Alpaca is the wool-like, soft and silky growth of the alpaca or paco of South America. The fleece of this animal is very valuable in the manufacture of yarns for fine dress goods, and coatings. The fiber is noted for its length, sometimes growing to 25 inches. But the animal is usually shorn of its fleece when the fibers are about 8 inches long. The fiber is not so curly as wool but it is fine, strong and otherwise suitable for textile purposes.



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(Continued from Page 6)

outer ends of these spindles. This method of driving a milling cutter directly by means of a belt has been found very efficient inasmuch as it eliminates vibration and tendency to chatter caused by a gear drive, the belt producing a certain cushioning effect, and cutters thus driven require less frequent grindings and may be operated at a higher speed than those driven through a train of gears.

Power for driving the card is applied to the main cylinder shaft where a pair of 20-in. tight and loose-webbed pulleys receive the belt. On the other end of the shaft an 18-in. pulley serves to drive the lickerin and flats. These pulleys require a considerable amount of machine work inasmuch as each is made with one or more grooves on one side for driving a round belt in addition to the crowned face. The outer sides of the webs are also turned. A special lathe, Fig. 13, was developed for doing this work by forming tools which carry cutters the full width of the surfaces to be finished. Special attention is called to the massive design of this machine, the headstock spindle being 16 in. in diameter. The heavy heads absorb all vibration even under the heaviest cuts. A special tool block is arranged for each operation, two of which are shown at the base of the machine, the one at the left being used for forming the web and rim, while that on the right blocks out the grooves and half of the crown, the other half being finished in a second operation by turning the pulley around. A spring chuck clamps the pulley securely in place while turning. This machine also carries a boring bar by which the hole is bored and reamed while the turning operation is going on. The average time for finishing the pulley shown at the left of the machine is 11 minutes.

The boring out of the ends of the lickerin shell also proved to be an operation which could not be readily or economically performed on a commercial type of tool and many of the milling operations on the various smaller parts of the card are such as to require the use of gang or form mills. This is also true of many of the milling operations on other textile machines. For this class of work a semi-automatic milling machine is used.

Coming now to the erecting room, the cards are set up here in rows of twenty-five each as shown in Fig. 14. They are completely assembled with the exception of the clothing and the flats and are then run off and carefully inspected before boxing. Dowel pins are provided wherever necessary so that the work of assembling at the mill is reduced to a minimum.

From the foregoing descriptions and machines which have been illustrated, there are several points to which attention should be called. First, the all-important problem is to get the actual labor cost per piece as low as possible, consistent with the high standard of quality require-

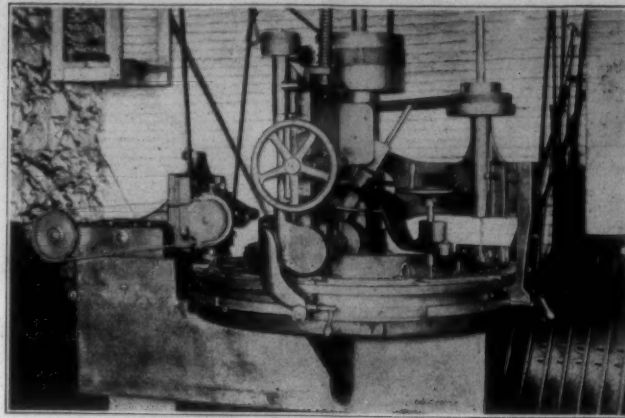


Fig. 11 Arch Milling, Drilling and Tapping

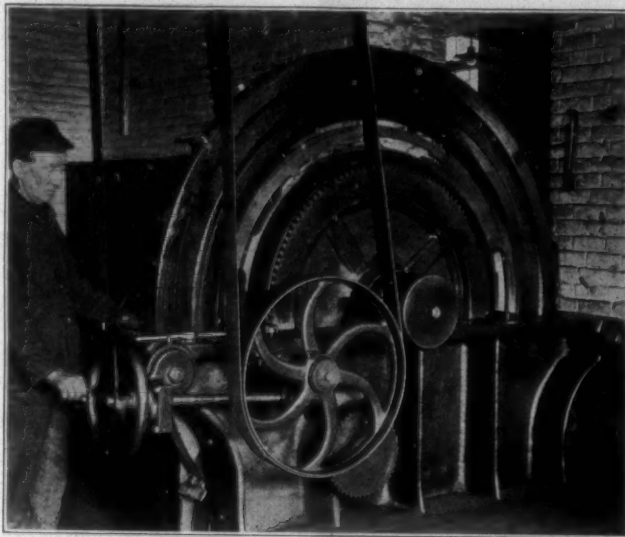


Fig. 12 Flexible-Bend Milling Machine

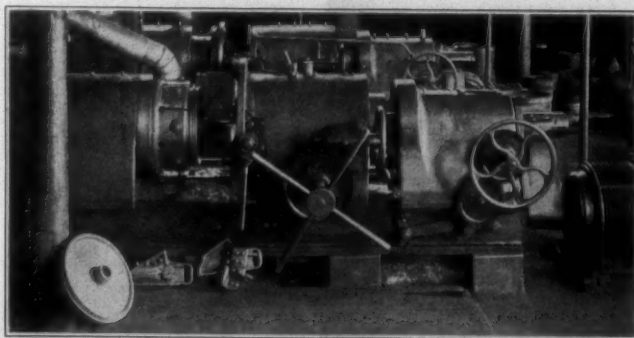


Fig. 13 Pulley Lathe

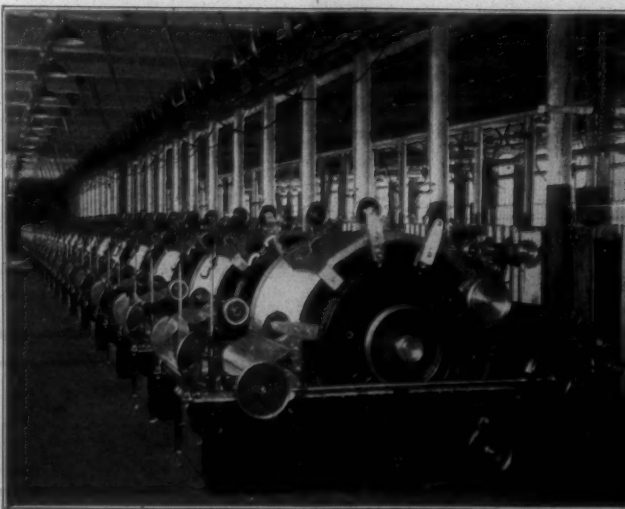


Figure 14—Erecting Floor

ed. This problem is somewhat different from that of most production shops where the low cost of production is arrived at by getting as large a production per machine per day as possible. Many of these special machines are capable of turning out two, three and even four times the amount of work required and are therefore often stopped from one-half to three-quarters of the time. It has therefore been found advantageous to arrange the machines in groups so that one man by operating the group will produce the amount of work required from the machines in his group.

Second, in designing the special machines it will be noted that extremely liberal dimensions have been allowed, and that the lathe and milling machine spindles have been made to approximate as nearly as practical the diameter of the work to be turned, or the cutter carried by the spindle. In many instances these spindles are made of cast iron, running in bearings of the same material, the surfaces of which when glazed over are almost impervious to wear. The large masses of metal in these spindles, bearings and other parts have been provided so as to absorb all vibration and prevent any tendency to chatter even under heavy cuts and feeds.

Third, each machine is designed to do one or more operations on one special part and is suitable for no other purpose. Equipment of this kind is possibly only where the product has been thoroughly standardized and is not subject to major changes in design.

Choosing a Mill Site.

the most important, if not the most important thing, in connection with the construction of a new plant, says Albert L. Scott in Builders.

There are two general features to be considered in this connection. First, is the general location of a site. To reach a decision on this point we must take into consideration such questions as freight rates, labor supply, police and fire protection, nearness to markets, taxation, availability of raw material, laws, competition, transportation, possibility of expansion and climate.

These facts can generally best be considered in conjunction with the owners, and involve not only a knowledge of engineering but also an appreciation of general business conditions. Quite frequently we are not called upon to advise on such questions; but I believe it is of advantage to the average client to advise his engineers on matters such as these, because if we are good for anything, our experience will be helpful in reaching a proper solution of such problems.

Generally speaking, however, the general location has been determined upon before we are called in, either because of the location of some other plant nearby, of which the new plant is to be a part, or to which it is to be related; or because the owners of the business happen to live in a certain locality. I know of a case of a large foundry and machine shop which was located in

(Continued on Page 30)

Marked Improvement in World's Cotton Manufacturing Industry.

(By Alston H. Garside, Statistician of the National Association of Cotton manufacturers.)

The cotton manufacturing industry of the world ran at about 80 per cent of capacity during the six months ending January 31, 1922. The curtailment of production during that period, partly in the form of short-time running and partly stoppage of machinery for indefinite periods, was equal to the complete stoppage for the entire six months of about 30,000,000 spindles. As there are about 36,000,000 spindles in the United States, the curtailment was equal to the complete stoppage for the entire half year of about 85 per cent of the entire American industry.

This showing, while bad enough in itself, represents a very marked improvement over the conditions of the industry during the preceding half year. In the six months ending last July the world's cotton mills curtailed 36 per cent of capacity. That half year covered the worst of the 1920-1921 depression. It will be seen from this comparison that the cotton manufacturing industry has gone a long way in its recovery toward normal.

The improvement in the industry during the last six months has been most pronounced in the United States. In this country the mills ran at about 94 per cent of normal during that period compared with only about 79 per cent in the preceding half year. England, which has more spindles than any other country in the world, has also recovered sharply, but even so its cotton industry has been in a very unsatisfactory position during the last six months. In this period the curtailment in the English industry was equal to the complete stoppage for the entire period of approximately 12,900,000 out of the 56,400,000 spindles in the country or 23 per cent.

The table below gives the detailed statistics for individual countries. It will be noted that this table covers 143,770,000 spindles out of the approximately 153,000,000 spindles in the world. Statistics from the countries containing the other approximately 10,000,000 spindles are not available. Assuming that operations were reduced in the countries omitted to about the same extent as in the countries included in the table, it is obvious that the total curtailment in the world during the six months was, as stated, equal to the

complete shut-down of approximately 30,000,000 spindles. This curtailment is computed on the basis of a 48-hour week as the normal full working week in the northern part of the United States, in England and on the Continent.

Program of American Cotton Manufacturers Association.

All indications point to one of the most interesting and enjoyable conventions in the history of the American Cotton Manufacturers Association in Washington, May 26-27. The Washington Hotel will be official headquarters, where the sessions will be held in the lounge room on the first floor with the banquet Friday evening in the beautiful Hall of Nations at 7:30 o'clock.

The program is an exceedingly attractive one. The president's address will be given at the opening session and will be of exceptional interest and importance. Hon. James A. Emery, counsel for the National Association of Manufacturers and one of the foremost attorneys and orators in the country, will follow, discussing the "Trend of Legislation in Washington." Announcements will then be made of the personnel of the Resolutions and Nominations Committees, Mr. Samuel F. Patterson, of North Carolina, having been appointed chairman of the former, and Captain Ellison A. Smythe, of South Carolina, chairman of the latter.

At the afternoon session the speakers will be the Hon. Henry C. Wallace, Secretary of the Department of Agriculture, and Hon. Thomas O. Marvin, chairman of the United States Tariff Commission. Mr. Wallace will discuss topics of vital interest to all manufacturers, dwelling especially on the cotton crop situation, crop reports, etc. Mr. Marvin will deal with the work of the Tariff Commission and its bearing on the general business of the country.

The banquet Friday evening will be featured by addresses by Sir Auckland Geddes, British Ambassador in Washington, and Dr. J. H. Kirkland, chancellor of Vanderbilt University, Nashville, Tenn.

The concluding session will be held Saturday morning, May 27, when the business of the Association will be considered, particularly those problem which relate to the development of the industry and the work of the association proper. Reports will be had from the various committees, which will be followed by the election of officers for the ensuing year.

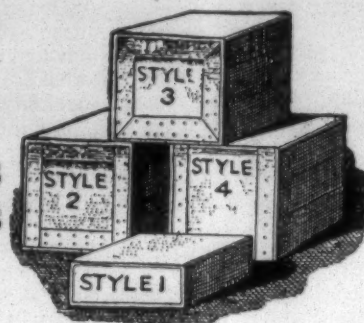
Country.	Total Spindles.	July 31, 1920 to Jan. 1, 1921	Jan. 1, 1921 to July 31, 1921	July 31, 1921 to Jan. 31, 1922
England	56,420,000	13,000,000	27,500,000	12,976,000
United States	36,843,000	9,000,000	7,700,000	2,321,000
France	9,600,000	2,200,000	3,800,000	1,554,000
Germany	9,400,000	2,750,000	1,975,000	1,175,000
Russia	7,100,000	6,350,000	6,350,000	6,425,000
Italy	4,550,000	160,000	540,000	759,000
Czecho-Slovakia	3,565,000	1,750,000	1,200,000	809,000
Spain	1,805,000	325,000	630,000	451,000
Belgium	1,584,000	450,000	770,000	468,000
Switzerland	1,550,000	75,000	200,000	151,000
India	6,870,000	Nil	Nil	Nil
Japan	4,483,000	674,000	1,250,000	1,035,000
	143,770,000	36,734,000	51,915,000	28,124,000

—Bulletin of National Association of Cotton Manufacturers.

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IF I WERE BUILDING A MILL



The Contest.

The articles submitted in the contest "If I Were Building a Mill" are making one of the most interesting series that has ever been published in regard to building and equipping a mill. It will benefit every one in the industry to carefully follow the various specifications preferred by the writers.

Number Twenty-five.

If I were building a mill, I would go to some small, progressive town and look it over for a suitable mill site near the railroad station. After finding a site to suit me, I would take the matter up with the leading business men of the town. After interesting them in the mill I would have them to organize a company and elect a president, secretary and treasurer, and get a charter from the State and build the mill.

I would get about 30 acres of land and build a 10,000 spindle yarn mill for number 20s.

I would use electric power, as this is the coming power and more convenient to use. I would place this machinery in a 250x125 feet, one-story building, monitor roof, top of mill to be covered with tar and gravel and have hardwood floors.

I would put up two cotton warehouses, one for the purpose of stor-

ing cotton from $\frac{3}{4}$ -in. to 1-in. staple, good middling cotton from the farmers in the county in which the mill is built. I would make each warehouse to hold 1,000 bales of cotton and the storage fees would be profits for the company. I would build the warehouses of brick and have concrete floors, also a sprinkler system to each house, also having tar and gravel roof. In one of these warehouses I would have my opening and mixing room about 40 feet by 40 feet. I would install in this room one opener and one waste picker, the opener to be of the latest apron type. I would open about 20 bales of $\frac{3}{4}$ -in. to 1-in. staple cotton at a time and if I should have an off colored bale or two, I would use one bale to every 10 good bales and would feed off this the tops of all the bales until they all were used up together, running my waste machine along with the opener and feeding my waste lightly along with the 20 bales of cotton. I would get in this mixing as good a mixing as can be gotten. I would blow this cotton in the picker room from the warehouse through a 12-in. pipe and use a condenser and screen. This cleans it better.

In the picker room I would use two breaker lappers. On the first set of beaters next to the hopper I would have a 3-blade beater to be set 5-16-in. to feed roll, second

set of beaters to be set 4-16-in. to feed roll. Would use two intermediate lappers, both to have carding beaters set to feed roll 3-16-in., and finishers to run 990 to 1,000 r.p.m., fan speed to be 1250 r.p.m. This will give an even lap. The draft on the intermediate and finishers lappers to be 4.50 to 4.75. The drive for these machines, I prefer the individual motor drives, placed on the frame work of the machine.

The next point to be taken up is the production of the spinning room. The production tables of the machine builders give the production for one spindle on No. 20s warp for 10 hours as .378. This gives 22,680 lbs. for 60 hours, or one week. For 10,000 spindles, allowing 5 per cent waste between spinning and picker room would give 22680 divided by 95, which equals 23,873 lbs. Now, allowing another 5 per cent for waste in the picker room, gives 23,875 divided by 95, which equals 25,130 lbs. weekly, or the actual pounds the finishers would have to put through per week to keep up.

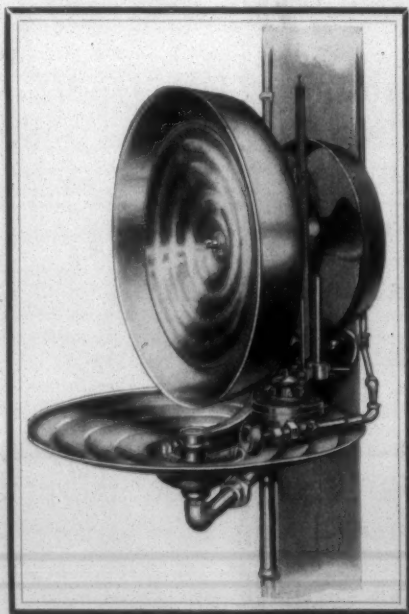
Now, the next to be considered is the number of cards to deal with this 25,130 lbs. of cotton, so I will card 125 lbs. in 10 hours. This will be 750 pounds per week of 60 hours for one card, we take the 25,130 lbs. and divide by 750, thus 25,130 divided by 750 equals 34 cards as the number required. I will make

a 14-oz. lap on my finisher picker and will use a draft of 105 on my cards, and make a 58.33 grain sliver at the card less 3 per cent loss in waste in passing through the card, which would be 56.59 grains up at back. Of course, drawing frame.

Next to be considered are the necessary drawing deliveries to deal with 25,130 lbs. of cotton per week of 60 hours. The front rolls of drawing frames are generally 1 $\frac{1}{2}$ -in diameter and run at different roll speeds per minute but I will use 300 r.p.m. as a drawing frame with this front roll speed will do good work if the frames are kept clean. 300x1.375x3.1416 gives 43 yards per minute for one delivery, 43x56.59x3600 gives 873 lbs. for one delivery for 60 hours, or one week. 25,130 divided by 873 gives 29 deliveries. I would use 30 deliveries. This gives five heads of six deliveries each for the coarse drawing and five heads of six deliveries each for the fine drawing I would use 12-in. coils and cans. I would use metallic rolls and mechanical stop motions. Would have a draft of 6 on coarse drawing and fine frames.

I will use a draft 3.50 on my slubbers and make a .60 hank slubber roving, three .1767 hank sliver up at back of slubber, .1767x3.50 gives .60 H. R. at slubber. I will use 3 slubbers, 12x6-in., 9 $\frac{1}{4}$ -in. space, 72

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spindles to the frame. I will use a draft of 4.50 on the intermediate and make 1.35 H. R. I will use 6 intermediates, 10x5-in., 7-in. space, 90 spindles each.

I will use a draft of 5.50 at the fine roving frame and make a 3.70 H. R. I will use 12 roving frames, 8x3 3/4-in., 5 1/4-in. space, 152 spindles each. I will use a draft of 10.75 on my spinning and produce 3.70x10.75 equals 19.875 yarns. I will use 42 ring spinning frames, 240 spindles each, 7-in. cylinders, 3/4-in. whorls, 1 1/4-in. rings, 2 1/4-in. space, 7-in. traverse, plain spindles and a band drive with the regular 4-frame drive with the 12-in. motor pulleys driving a 12-in. pulley on the spinning frame. This drive the front roll up to speed and you will get production.

Next to be considered are the spooler spindles to take care of 25,130 lbs. of number 20s yarn so one spooler spindle will run 30 lbs. per week. We divide 25,130 by 30, which equals 838 spindles. Dividing 838 by 100 equals 8 spoolers required. I would use the 6x4-in. spools and would use the regular spooler racks to hold the bobbins.

The twistors come next. One twister spindle on number 20 yarn will run 5 lbs. per week, so we divide 25,130 by 5, which gives 5,026 twister spindles required. Dividing 5,026 by 240 the number of spindles on one twister and this gives 21 frames of 240 each. I would use 2 1/4-in. rings on No. 20s with a 3 1/4-in. space and a band drive with the regular 4-frame drive with 12-pulleys.

I will use 14 three-inch space reels to make 54 to 72-in. skein yarn. I would install 8 cone winders so if I could not sell skein I could sell hosiery yarn or 20s-2 ply on tubes, or 20s single on tubes. I also would put in one Denn warper and sell warps if possible at a profit.

I would use one Cole Brothers band machine. I would also install humidifiers, the automatic system. Would use them in lap room around the cards and drawing frames but I would not use them around my speeders, but use them in all other departments.

I would use one boiler to heat the mill with and would use the return back to boiler system, as this saves half of your fuel bill. I would have a first-class machine shop equipped with the latest machinery to do all kinds of repair work in the mill.

I would drive my cards and drawing frames from an overhead line shaft driven from one large electric motor. I would run my card cylinders standard speed, 165 r.p.m. I would use ball bearings on all the beaters in the picker room; also I would use them in my hangers on the line shafts. I would use single and four-frame drives on my fly frames.

As to the village. I would lay off wide streets, build 3, 4, 5 and 6-room houses 100 feet apart, using the bungalow type of houses. I would not paint any two alike. Would give each house a good lot for garden and flower yard. I would install electric lights in every house and have a bath room to each

house; also water put in all the houses, would put down two deep well pumps to each 1,000 yards of houses so my help could get cool drinking water in the summer time or whenever they should need it. I would build one large graded school, two churches, one Baptist and one Methodist, one laundry run by the company; also an ice plant to furnish ice for the mill village and town at a reasonable price. I would have tennis courts for the girls and boys and also a baseball park. I would build a 15-room boarding house for men and boys and a 15-room boarding house for women and girls. I would have all houses numbered and a chart of all the houses and village, the chart and keys to be kept at the mill office. I would have all streets named and would have the yard overseer to inspect the mill village and houses weekly and report any damage done to the superintendent and the same charged to the family occupying the house. I would use a 2 1/2-ton truck to do the hauling for the mill.

Griffin.

Number Twenty-six.

If I were building a mill, I would want a capital of \$2,000,000, the equipment to consist of 80,000 spindles, each machine to have the individual drive. The main will would be two stories high, and the power to be steam electric. The product would be plain white goods, drills and twills.

The main building would be two stories high, built of the following materials: The walls to be of brick, hard pressed, trusses, columns and girders of steel, floors and roof decking to be of heart pine, ship lapped, finishing floors to be of hardwood; roof to be of paper, tar and gravel; windows to have metallic frames set in metallic casings, doors to be metallic, set in metallic frames.

The first floor would have the slashing, drawing-in, tying-in, weaving, inspecting, grading and shipping. Second floor would have picker room, card room, spinning, spooler and warper room. The pickers should be separated from the card room by fireproof walls; cards to be separated from drawing; slubbing and fly frames by the same method; spinning to be separated from card room by the same method, and spoolers and warpers also to be separated from spinning by the fire walls.

The ground floor would be built in separate rooms the same as the second floor, for I have found that each department requires a different degree of temperature and moisture for the maintenance of even and productive work. I have seen production increased by five per cent by the separation of spinning and carding.

The heating of the main mill should be by hot air furnished through floor and wall ducts, with individual, automatic controls.

The moisture would be supplied by automatic humidifiers. All power cables should be drawn in rigid conduits concealed in the floors. All



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light cables would be drawn in rigid conduits, controlled in sections from flush paneled boxes in each department.

The picker room would receive its cotton by conveyors from opening room at warehouse. The breakers would be 2-wing steel beaters, intermediates and finishers to have carding beaters, all bearings to be ball bearings, even to aprons. The cards would be flat top type, equipped with automatic card stripping devices.

Drawing would be two processes, steel rolls with electric stop motions, stepped down by transformers instead of the dry cell process.

Slubbers would be 10x5, 72 spindles; intermediates, 9x4½, 102 spindles; speeders would be 7x3½, 144 spindles.

Spinning would be of ring type, tape driven spindles, double roving, equipped with separators, 212 spindles. Spoolers would have 212 spindles each equipped with tension guides, comb type. Warpers would be beam type, with V-shaped creels to take care of 800 ends.

Slashers would be equipped with ball bearings and circulating system and would take care of 40-in. goods, using overhead trolleys for handling beams.

Drawing-in and tying-in machines would be equipped with tracks for handling beams to and from machines.

In the weave room I would have 40-in. automatic looms with 4-harness cams and tape selvage attachments; also equipped with cloth and quill feelers. Weave room would also have its own quill stripper to care for its own pieces.

The cloth room would have sufficient folding machines, inspecting machines and finisher and finishing machines, stitchers and presses to handle the woven products and allow no shoddy goods to be shipped.

The warehouses would be built of brick with cement and concrete floors and have overhead tracks and conveyors for handling raw material, and also have lights installed in rigid conduits. The outside platforms would be of concrete with overhead metallic covering.

The opener room would adjoin the warehouse and be equipped with automatic feed control from picker room. The waste room would have one four-section waste opener, 1 tie strengthener, 1 bagging brush and picker, 1 press for standard bales.

Each department of the mill would have sufficient sanitary drinking fountains which would be supplied with water at a temperature of 45 degrees. Each department would also have lavatories and dressing rooms and would have individual steel lockers. The male lavatories would be on one side of the room and female lavatories on the other.

The supply room, roller room, machine shop and carpenter shop would be one-story structure of brick, built on the same specifications as the main mill and adjoining same.

In the supply room would be all supplies for mill and power plant and repair department, except heavy

supplies, such as boiler tubes, brick, cement, paint, oil, grease, cast iron and similar supplies. The roller room will be equipped with modern machinery for recovering rolls.

In the machine shop there would be one 18x36-inch quick change gap lathe; one 14-in. quick change engine lathe, one 10-in. quick change engine lathe, one No. 3 Universal miller and attachments, including vertical head; one automatic gear cutter for both spur and angle gears; one horizontal planer, 10-ft. race; one broaching attachment for 18-in. lathe, one Universal grinding machine; one tool paste grinder; one drill press, 24-in. table, one drill press 12-in. table; one bench drill, one set emery wheels and stand; one high speed hack saw, one shaper, 24-in. stroke; machine tools and attachments to do all repair and finished work in the mill.

The carpenter shop would have one Universal woodworking machine, one four-head surfacer; one cut-off saw, one combination joiner and rip saw.

The smith shop would be in a separate building and would contain one forge, air blast, one tool furnace, gas and air blast; one acetylene welding outfit, one drop hammer and combination shear and punch.

The power plant would have water tube horizontal boilers, mechanical stokers and ash conveyors, boilers to be fed by electrically driven pumps, but have one steam driven duplex pump for emergencies. The power for operation

would be furnished by steam turbine set, 2,200 volts, stepped down to required voltage for various operations. The engine or turbine room would contain a horizontal turbo-generating set for power, 2,200 volts; one turbo generating set horizontal type for 220 volts for lighting purposes; both sets to be alternating current and sets. The boiler room would have enough boiler capacity to allow for one boiler to be idle at all times for cleaning and repairs.

The pump room would contain 1 triplex boiler feed pump, electrically driven, one duplex boiler feed pump, steam driven, 1 triplex electrically driven humidifying pump; one air compressor for furnishing air to all departments of the mill for cleaning purposes and distributing oil from main storage tank; one steam condensing pump for power turbine, one cooling system with auxiliaries for drinking water purposes, one steam condensing pump for lighting turbine; one triplex electrically driven pump for flushing and bath purposes.

The switchboard would be equipped with oil breaker switches and necessary instruments for proper care and maintenance of equipment. The engine and boiler room would be built of brick and steel and well ventilated.

The transformer station would be built of brick and steel and well ventilated and lighted. All transmission cables leading to and from same would be underground cables and transformers would be protected

by proper fuse switches and fuses.

The office would be of pressed brick, tile roof and hardwood interior finish.

Village.

In the village I would build 3, 4, 5 and 6-room houses, bungalow type, single story, with fireproof roofs, each home to have water and lights and built on a plot of ground 100x200 feet and each enclosed by fence. Each house would have bath, sink, lavatory and stool. When repairs were necessary from carelessness of tenants, they would be charged with part of repair cost.

The village would have the following public buildings: Two churches, union, one school building graded for eight grades, one community building. The latter would have an auditorium for moving pictures and lectures; gymnasium which would also serve as dancing floor and skating rink; reading room for all; bowling alley, shower baths and banquet room.

A community garden would be planted each year for boys and girls under 16 years and prized awarded for the best plots. Seeds, tools, fertilizers would be furnished by the company and planting and cultivating directed by an employee of the company.

A community green house would be maintained by the company for the preservation of pot flowers of the employees, and plants and flower would also be sold for gardening and beautifying.

A civic league would be formed and maintained in the village for the purpose of eliminating undesirable tenants and to stimulate hygienic and social conditions.

Jay Green.

Number Twenty-seven.

Site.

I should choose a location where it was possible to develop hydroelectric power, near the market for products of mill, good shipping facilities, labor supply and in a community of healthful climate that would offer inducements for the establishment of a cotton mill, i. e., in the matter of taxation, etc.

Buildings—Mill.

Modern mill construction, reinforced concrete, one-story with basement. Weave room roof saw-tooth type, spinning room roof modified clearer story with windows for ventilation. A square tower is built at picker room end of mill extending to roof to be used in place of ordinary dust chamber.

Power House.

Reinforced concrete, separate unit from mill building and boiler house, power and light to be furnished by turbine water wheels and generators in vertical units. One-story building.

Store-House.

Reinforced concrete, pitch roof, one story.

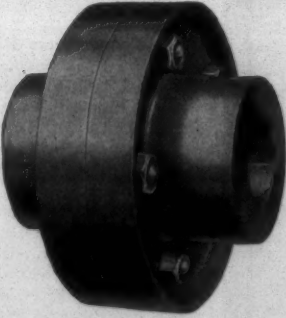
Opening and Mixing House.

Reinforced concrete, pitch roof, to contain bale breakers and mixing floor, one story.

Boiler House.

Reinforced concrete, clearer story roof, two story. To contain boilers

CLUTCHES



COUPLINGS

CLUTCHES

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SONS CO.

FLANGE OR PLATE COUPLINGS

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COUPLINGS

for heating and pumps for water supply.

Houses for Operatives.

Wooden frame buildings in two tenement units with modern conveniences.

Production.

Mill to manufacture plain cloth 36-in. wide, following counts, 24-20, 26-22, 28-24, 32-24, 32-28, 36-32, 40-36, 44-40, 44-44; 30s warps and 40s filling using American cotton, grade, strict middling to good middling, staple, 1 1/4-16-in. full. There is a brisk demand for these constructions built on quality, especially in heavier counts for the curtain trade. Cloth is woven in 140-yard cuts.

With 62 232-ring spindles and 1,452 automatic looms it is conservative to expect a production of approximately 58,000 pounds of cloth per week.

The pickers, cards, draw frames and slubbers are to run on two shifts, 48 hours per week in daytime and 8 hours per night for 5 nights per week. Looms run 5 noon hours and one hour per night for 5 nights. Total, 58 hours. This procedure gives following aggregate hours machinery is run:

Pickers, cards, draw frames, slubbers, 88 hours; intermediates, fine, spinning frames, and other machinery, 48 hours; looms, 58 hours.

Opening.

Cotton is opened and mixed at opening house, fed to bale breakers and in turn deposited on conveyor belt which delivers to trunk system and is carried to picker room by means of blower and exhaust fans, through condenser which deposits cotton on another conveyor belt that delivers to cotton bins in picker room. It is fed by hand to breaker picker.

Bale breakers, 5 units, standard type, speed of main shaft 450 r.p.m. Production in 48 hours, approximately 72,000 pounds.

Picking.

Breaker Picker—6 units, single section, automatic feeder, adjustable grid bars, 3-blade solid beater, 1,000 r.p.m., 40-in. Production approximately 72,000 pounds, 58 hours.

Intermediate Picker—6 units, single section, adjustable grid bars, 3-arm Kirschner beater, even motion, beater 1,200 r.p.m., 40-in. Production approximately 72,000 pounds 88 hours.

Finisher Picker—6 units, single section, adjustable grid bars, 3-arm Kirschner beater, even motion beater 1,200 r.p.m., 40-in. Production approximately 70,000 pounds, 88 hours.

Carding.

93 units, 50-in. cylinder, 27-in. doffer; 110s wire flats and doffer, 100s wire cylinder; 110 flats, 12-in.

boiler, r.p.m. doffer 40; 40-in. card, r.p.m. cylinder 165; r.p.m. lieker, 420. Vacuum hand strippers. Production approximately 70,000 pounds, 88 hours.

Drawing.

Breaker—1 1/4-in. front roll, metallic top rolls, patent top roll clearer, electric stop motion and full can stop. r.p.m., front roll 300; 90 deliveries, 6 per frame.

Finisher—As breaker, 1 1/4-in. front roll, r.p.m., front roll 300; 90 deliveries, 6 per frame. Production approximately 68,000 pounds 88 hours.

Slubbing—Slubbers 12x6x10-in., 1 1/4-in. front roll, ball bearing top rolls, r.p.m., front roll 154; r.p.m., flyers 650; 680 spindles, 68 spindles per frame. Production approximately 68,000 to 70,000 pounds, 88 hours.

Intermediates—10x5x7 1/2, 1 1/4-inch front roll, ball bearing top rolls; r.p.m., front roll 142; r.p.m., flyers 950; 4,000 spindles, 100 spindles per frame. Production approximately 70,000 pounds, 48 hours.

Fine Frames—7x3 1/2x5 1/4-in., 1 1/4-in. front roll, ball bearing top rolls; r.p.m., front roll 96; r.p.m., flyers 1,250; 17,056 spindles, 164 spindles per frame. Production approximately 65,000 pounds, 48 hours.

Spinning.

Warp—3-in. space, 6-in. traverse, 1 1/4-in. ring, combination builder, tape driven spindles; adjustable saddles; 1-in. front roll, r.p.m., warp 120; spindles, r.p.m., warp, 9,600; 37,144 spindles, 256 spindles per frame. Production approximately 39,000 pounds, 48 hours.

Filling—As warp, 1-in. front roll, r.p.m., filling 110; spindles, r.p.m., filling 7,900; 25,088 spindles, 256 spindles per frame. Production approximately 31,500 pounds, 48 hours. Filling yarn spun direct on loom bobbins.

Spooling.

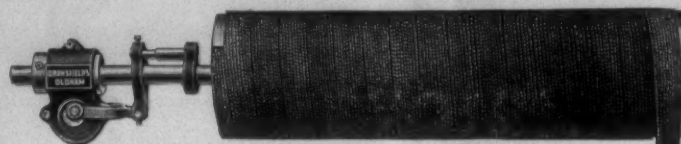
Spoolers—2,860 spindles, 110 spindles per frame, 5-in. traverse, 5 1/2-in. space; diameter head of spool, 4-in.; length between spool heads, 5-in.; r.p.m., spindles 825.

Slashing.

Three slashers, single head, creel for four section beams. Copper steam jacketed size box. Low pressure steam.

Size mixing and cooking to be done in steam jacketed kettle with agitator on mezzanine floor. A jacketed storage tank is also provided from which size is circulated and strained from size boxes while slashers are in operation. Slasher length of cuts is 145 yards. Ends in warps: 860, 954, 1024, 1168, 1284, 1456, 1584.

(Continued on Page 22)



January 1st, 1922

The Prices of
DRONSFIELD'S
"ATLAS BRAND"
Emery Filleting
was substantially REDUCED



Only rigid economy and improved methods of production permit of such a reduction which is greater than the equivalent in reduced costs of materials and labour.



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SALES AGENCY

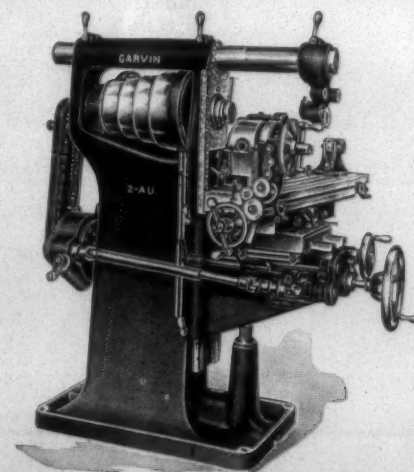
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Shops — And it is
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Fire Without Having A Cleaning Period On



For Use with Either Natural, Induced or Forced Draft
FOR DETAILED INFORMATION WRITE

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BIRMINGHAM, ALA.

The Genius of Conversion

What it Has Done For You

That peculiar genius that allows the American manufacturer to place the better things of life within the reach of every one, is responsible to a great extent, for the love of good music that is so characteristic of the American fireside.

It is a genius that asks only that it be allowed to produce in quantity in order that it may produce economically.

The same genius has been brought to bear upon the production of the **Kerr Bleaching and Finishing Works**. Pure white Seamed Sheets and Pillow Cases are made in such large quantities from gray piece cotton goods in our modern plant that we can afford to accept the smallest possible margin of profit on this great service to the trade.

Throughout our entire establishment this genius together with the peculiar climatic and economic conditions have great bearing upon the following service:

Bleaching, Finishing and Dyeing Cotton Piece Goods, Pajama Checks and Towels, Napping Cotton Piece Goods and Flannels in such quantities as to render the greatest service at a minimum cost. For further information regarding the conversion of "off color" and unsalable goods into profit write today to

K E R R
Bleaching & Finishing Works
CONCORD, N. C.

The New Tensile Tester for Textiles

Both manufacturers and users of textiles will be interested in the new Perkins Tensile Tester, illustration of which appears in the manufacturer's announcement in this issue. This is made by the firm of B. F. Perkins & Son, Holyoke, Mass., manufacturers of the standard Jumbo Mullen Tester, which indicates the exact bursting strength of textile fabrics. The new Tensile Tester is especial value wherever an accurate tensile or pull test of textiles is desired.

The Perkins Tensile Tester is of the vertical type, and is hydraulically operated. The cylinder is filled with a liquid which is compressed by a solid metal plunger, which fits the cylinder with a very accurately ground and lapped fit, and has no packings to wear out or get out of order. This plunger is attached to the upper or stationary clamp by means of a stirrup brings the pull in a straight vertical line without cramping and without side pull.

The lower or moving clamp is attached to a vertical screw which is operated by means of a handwheel on the side of the machine. The pressure is indicated on a specially made standard gauge which is acted on by hydraulic pressure from the cylinder. The readings are given in pounds per inch breaking strength of a strip of cloth or other material. The material to be tested is therefore cut into strips one inch wide.

Removable and interchangeable stop-gauges are provided which automatically separate the clamp jaws one inch, two inches, or four inches apart, as desired, so that strips of these lengths may be tested easily.

The material is inserted and clamped uniformly and without side cramping by means of a device whereby the clamp jaws are held rigid during the insertion of the

strip to be tested. As soon as the test begins to be made, the clamp jaws are freed so that they are on a swivel, and the strain of the material is thus taken up uniformly.

When the handwheel has turned the strip of cloth under test is subjected to a direct pull. This operates on the fluid in the cylinder, which simultaneously acts on the standard pressure gauge. The pointer on the gauge stops automatically as soon as the material breaks, and thus accurately indicates the tensile strength of the material to the exact breaking point in pounds per inch strip, the pointer remaining stationary until it is released by pressing a button at the side of the gauge.

The Perkins Tensile Tester is a strictly modern high-grade machine which, together with the Jumbo Mullen Tester, gives to manufacturers and users of textiles greatly increased assurance of uniform excellence of product in keeping with modern technical and business requirements.

The new tester is simple and easily operated, and is in keeping with the reputation B. F. Perkins & Son, Inc., have maintained for nearly half a century. The best possible construction and workmanship is assured by the insistence of this firm on superior quality, the manufacturers say, and also by their long experience in making and perfecting standard testing apparatus for the practical testing of textiles.

Effect of Textile Strike.

(Journal of Commerce)

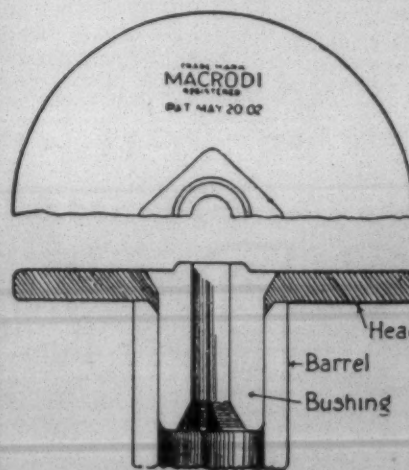
It has been the common experience that strikes bring about fundamental changes in trade and industry. The prolonged textile strikes in New England are hardly likely to bring about fundamental changes, but it is now possible to see that

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Last Longer, Make Stronger Yarn, Run Clear, Preserve the SPINNING RING. The greatest improvement entering the Spinning room since the advent of the HIGH SPEED SPINDLE.

Manufactured only by the

National Ring Traveler Company
Providence, R. I.



The Macrodi FIBRE HEAD WARP SPOOL

after fourteen years of the hardest mill use has demonstrated that it is

Durable — Economical

Write for particulars of the added traverse with corresponding increase in yardage—an important feature of this spool. Prompt deliveries in two to three weeks after receipt of order.

MACRODI FIBRE CO
Woonsocket, Rhode Island

less important changes are on the cards.

The withdrawal from the markets of millions of yards of standard staple textiles is certain to bring about stronger competition later on. Goods less well known are being substituted in place of the standards, and where this is not being done delays in ordering are expected to bring about delays in deliveries.

Wherever substitute goods have displaced the standards it is inevitable that competition will follow. The New England mills will not permit their markets to get away from them without a struggle. It is quite possible that instead of seeing prices rise because of scarcity, as some men anticipate, prices may fall from their present levels through a determination to make prices for standards so attractive that they will be the cause of an early displacement of inferior or substitute goods.

It also seems probable that when the New England mills are in a stronger position to compete they will compete. They will be in a stronger position than they have been, not only because of lower wage scale that must come eventually, but because the ultimate effect of the prolonged idleness of the mills will be the means of eliminating many undesirable workers. This in turn will lead to a resumption on the part of other workers of their old attitude toward their work, which was one of efficient production and a desire to work.

The public sentiment that is of vital importance to New England mills at this time is the sentiment of the communities and States in which the mills are located and the sentiment of the stockholders who have invested their money in the mills. It is unthinkable that the technical and financial ability that has maintained and revived New England cotton mills has suddenly become inefficient and heartless. The publicity given to New England cotton mill financing is of itself and in itself sufficient proof that the investment has not been abused either from a community or a human viewpoint.

The cotton mill industry is not a mining or a Wall Street proposition and wherever wildcat methods of operation have worked into it, they have brought about their own punishment very quickly. Land owners, machinery builders and a host of others have at various times made it appear that the location of an industry is vital to its existence. For a time, and not always a long time, either, the advantages of location in the matter of freights, cheap labor, long hours of labor, taxation, and other things of a more or less fugitive character, work to divert investment from old established textile communities.

In the long run of the years and measured by every test of experience, the thing that kills industry in any given spot, and drives it elsewhere, is a public sentiment that affects the workers and lessens incentive on the part of managers. This public sentiment is susceptible in the degree that all sentiment is moved and perhaps it should not be a matter of surprise that New England sentiment has been changed by

the war. Eventually it will be governed by reason, and by faith in its industries, as it always has been. Just now it is far astray from the path of prudence and foresight it has tread in its hundred year's experience in cotton and woolen manufacturing. This long strike will help some elements in the communities to find themselves again.

The strike has progressed far enough to make it reasonably certain that New England mill operatives will not take very kindly to the nationalization of trades unionism along the lines that are being followed by the present leaders. These operatives are simple minded enough to believe that when aid is promised to them it will be of a substantial character and be freely given. Such aid has been promised from the beginning of the struggle twelve weeks ago.

Strike leaders who do not feel that they are accomplishing much unless they are getting a great deal of newspaper publicity have been visiting New England and uttering words of cheer. That sort of thing butters no parsnips and it does not lessen the obvious fact that a great many capable industrial workers in textiles are being held up to the world at large as beggars for pitances from fellow workers. Collections are being taken up from the general public and when the proceeds get down to the families who need support they amount to a few loaves of bread but mighty few fishes.

A great deal of the union labor leadership is being devoted to inflaming the workers' minds and not sustaining their leaders. That sort of thing makes headway fast in thickly settled sections. But it does not have a lasting effect in country communities. If real aid and support were being given to the strikers to supplement all the newspaper fuss being made about them they would feel more cheerful.

Unless present indications are very misleading this strike will see the finish of any effective I. W. W.ism among New England operatives. The prophets of that cult have already been discredited in many textile communities. It seems now as if it will not be much longer before the "Greenwich" villagers and others who are trying to stir up social circles in Boston against the mills that have made some of those circles possible will be discredited. The social reformers will live and thrive, but in the future they will have to assume a constructive rather than a destructive note to be successful in Boston.

Reparation Awarded Lubricant Company.

Washington. — Reparation of \$1,069.84, with interest, has been awarded by the Interstate Commerce Commission to the New York and New Jersey Lubricant Company, on petroleum lubricating oil and grease in carloads from Newark to Charlotte and Atlanta. The rates were found unreasonable and unduly prejudicial in that they exceeded 47.5 cents per hundred pounds to Charlotte and 59.5 cents to Atlanta.

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Plushes and Velvets

"It gives a clothly hand"

BORNE, SCRYMSER Co.

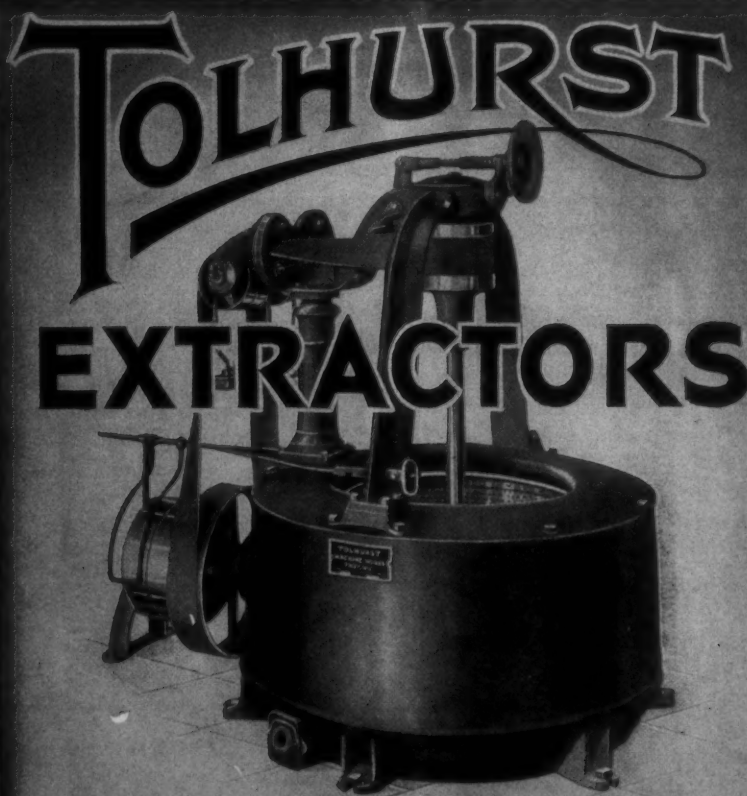
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SOUTHERN TEXTILE BULLETIN

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Address all communications and make all drafts, checks and money orders payable to Clark Publishing Company, Charlotte, N. C.

THURSDAY, MAY 11, 1922.

The Cotton Situation.

Several weeks ago we suggested that the cotton manufacturers, particularly those who had accumulations of goods, should pray for rains and snows and all manner of bad weather, and judging by the rains and floods that have come most of them must have accepted our suggestion.

It is too early to say that the 1922 cotton crop is killed or even seriously damaged but undoubtedly the rains have curtailed the proposed acreage and have made the entire crop about three weeks late greatly to the edification of the boll weevils.

Aside from the boll weevil danger there is another situation that has not yet been realized and that is that the lateness of the crop may cause a real scarcity of cotton in September.

According to the best authorities we will have on August 1st about 4,000,000 bales of American cotton, of which at least 500,000 bales are practically unspinnable and at least 1,500,000 will be in Europe or on the way there, leaving 2,000,000 bales available for American mills.

As a very small movement can now be expected before October the American mills must get their August and September supplies from this 2,000,000 bales and yet there appears to be much evidence that a large part of that cotton is "frozen," in the hands of farmers who are unwilling to turn it loose even at advance prices.

Unless the 1922 crop makes unusual progress from this date there

are liable to be strenuous times in September, 1922.

If, as the 1922 crop progresses, it should become evident that a small crop will result, get your pencil and figure out the situation in August and September, 1923, and a real thrill will be the result.

Of course, a fairly early and a large crop for 1922 is still possible, in which event no fears need be felt, but it is well to be aware of the possibilities in case the 1922 crop is reduced below twelve million bales.

Jim Barrett Slipping.

Jas. F. Barrett used the temporary textile unions to oust W. F. Moody and made himself president of the North Carolina Federation of Labor but that was last summer when the textile unions were strong.

Since then the mill operatives got wise to the fact that they were paying dues upon which a lot of men lived in idleness and most of the unions now exist only in name.

Consequently, Mr. Barrett has lost his voters and is slipping towards the exit, while W. F. Moody, the gum shoe worker, is looking forward toward the date when he will boot Jim Barrett out and step back into his old job.

Barrett sees the handwriting on the wall and is trying desperately to feather his nest by getting somebody to put up money for the publication of several labor union papers.

Barrett prepared a lot of questionnaires to be sent to legislative candidates in North Carolina and gave them to the press but when submitted to the labor council in his

home town of Asheville they were repudiated by an almost unanimous vote, Barrett being the only one present who voted for them.

Now, Barrett says:

"The whole thing smacks of that partisan political fight that has been waged against me and my principles for which I stand by certain Raleigh politicians who claim to be union men."

We prefer Barrett to W. F. Moody because he is a better type of man, but he has lost his following and has little chance of holding his job.

Improved Business.

We note the following very interesting paragraphs in the weekly market letter of Hunter Manufacturing and Commission Company of New York:

"We commented last week on the fact that all textile raw materials were tending to advance—a rather unusual condition, and a matter of considerable importance. Raw silk is rising under the close control of a Japanese speculative syndicate, closely allied with the Government; raw wool, because of the exhaustion of old stocks of cheap wools and proposed high tariff; jute, because of drought in India, and uncertainty about the size of the crop, because of political unrest; flax, because of the continued failure of Russia to get back to real production; cotton, because of the present statistical position—fear over the start of the new crop, and promise of smaller crops in Egypt and India."

"We have repeatedly spoken of the improvement in steel and iron, building, automobiles, and boot and shoe trades. Another line showing equal improvement is railroad equipment. Orders for locomotives placed in the last few weeks were greater than those placed through last year. More passenger cars have been ordered recently than at any time since the war began, and orders for rails are also running big."

"Export trade for the country at large is increasing, and continues satisfactory on cotton goods for South America and East Africa, though reports from Malina are unfavorable, and the Levant has been shut off for more than a month because in April financial affairs in Greece took an unfavorable turn and have not yet been straightened out, although hope exists for early improvement there."

In connection with their statement about automobiles we note that Studebaker sold 22,800 cars during the first three months of 1922 as compared with 11,600 cars sold during a similar period in 1921, and the increase in sale of other cars has been in about the same proportions. Automobiles are very large consumers of cotton goods and before long their business is going to be felt in the market.

Reduction in Textile Machinery Prices.

Notices have been sent out during the past week, by several shops, of reductions in the prices of textile machinery.

We understand that spinning can now be purchased on a base price of \$5 and cards for \$1,000 with other machinery in proportion.

We have carried in our columns during the past two weeks construction items aggregating more than \$3,000,000 and have unconfirmed rumors of a number of new mills.

New England Strikers' Names.

We note that injunctions were issued at Pawtucket, R. I., last week against the following textile strikers: Albert Lafromboise of Scituate, Florie Van Leene of Scituate, August Van Leene of Scituate, Luigi Nardella of West Warwick, Elzear Cote of Scituate, Louis Lavallo of Phenix, and Angelo Pascore of West Warwick.

We are indeed thankful that no such dago names are found upon the payrolls of our Southern mills.

Meeting of Southern Textile Association.

The annual meeting of the Southern Textile Association is to be held on June 2nd and 3rd at the Oceanic Hotel, Wrightsville, N. C.

It has been a number of years since the Southern Textile Association met at the seashore and yet the seashore meetings have always been among the most enjoyable.

Since the last meetings of the Southern Textile Association at Wrightsville the Seashore Hotel has been burned, but the Oceanic Hotel, which was newer, is amply able to take care of those who attend. Reservations should be made at the Oceanic Hotel at an early date in order to obtain the most desirable rooms.

Jno. W. Clark, of Durham, N. C., chairman of the program committee, has announced a very interesting program, including numerous practical discussions, and every member who can possibly arrange to be present should be looking forward to Wrightsville.

Capt. Lang Takes Agency.

In our issue of last week, it was stated editorially that Capt. Ed. Long had been appointed assistant sales manager, Southern division, of the U. S. Oil and Supply Company, of Providence, R. I. This statement was in error, the name appearing as Capt. Ed. Long, whereas it should have been Capt. Ed. Lang. Capt. Lang is one of the best known mill men in the South, having for years been connected with the mills at West Point, Ga. His active connection with the industry over a long period of years places Capt. Lang in an exceedingly favorable position to handle the new work he has undertaken and the U. S. Oil and Supply Company, is to be congratulated on having secured his services.

Personal News

G. H. King, of Greensboro, N. C., is now located at High Point, N. C.

W. W. Gregg, of Wilmington, has become overseer of carding at the Fountain Mills, Tarboro, N. C.

A. A. Jolly, of Gastonia, N. C., has accepted the position of superintendent of the Reynolds Cotton Mill, Bowling Green, S. C.

L. S. Crain has resigned his position at the Monaghan Mills, Greenville, to become overseer of weaving at the Victory Mills, Fayetteville, N. C.

C. J. Gault has resigned as overseer of spinning at the Chadwick-Hoskins Mill No. 3, Charlotte, and accepted a similar position at the Dilling Mills, Kings Mountain, N. C.

J. F. Shaffer has resigned his position with the Cannon Manufacturing Company, Concord, N. C., to become overseer of carding at the Buffalo plant of the Locke Mills, of the same place.

G. L. Still, formerly connected with the General Electric Company, at Lynn, Mass., and later master mechanic at the Ronda Mills, Ronda, N. C., is now master mechanic at the Kershaw Mill, Kershaw, S. C.

J. Locke Erwin Moves to Charlotte.

J. Locke Erwin, who has been active head of the Erwin Yarn Company, of Philadelphia, for some time past, will in the future make his home in Charlotte. Mr. Erwin is a brother of W. A. Erwin, head of the Erwin Mills, and was formerly treasurer of the Locke Mills, of Concord.

New England Company Considering Purchase of Two Wilmington Mills.

Wilmington, N. C.—New England interests are negotiating for the purchase of the Bellwill and Delgao Mills, according to local reports. Names of the New England mill men are not yet available for publication.

What an Ounce of Gold Buys in Labor.

One ounce of gold buys 17.22 hours of labor in the United States, 50.16 hours in Great Britain, 95.50 hours in Japan, 117.31 hours in France, and 201.66 hours in Germany. These figures were given recently by C. J. Hannon, member of the British Parliament, quoting statistics before the National Union of Manufacturers in Birmingham. The figures are interesting for the purposes of comparison, especially by the worker in the United States. He must know that he comes, indirectly at least, into competition with workers in the countries named, and that those countries are competitors of the United States in the world's markets. It should not be difficult for him to realize that if we are to meet

that competition successfully, and thus to his own advantage, we must in some way make our ounce of gold paid for 17.22 hours of his labor equal the ounce for the much greater number of hours of labor in the countries named. Our workers do not wish to give more hours for the ounce, and we are not saying they should do so. Then they must give something that will be a practical equivalent of more hours until the total of return from our ounce equals the total of return from the foreign paid ounce.—Bulletin of National Association of Cotton Manufacturers.

Lindsay Padgett Now With United Chemical Products Corp.

The services of Lindsay Padgett have been secured by R. T. Grant, Southern manager of the United Chemical Products Corporation, to represent the above firm through the Southern States as a special man on sizings and dyestuff materials.

Mr. Padgett has had years of experience as overseer weaving and finishing with several of the best mills in the Southern States, such as the Henrietta Mill, Chadwick-Hoskins and Ella Mill in North Carolina. He also traveled for a number of years as a special representative for Swan-Finch of New York, as well as the National Supply Company, Birmingham, Ala.

Bleached Goods!

(SELLING POINTS No. 36)

What do your customers want?

They want what the customers want:

A permanent white;
not weakened in bleaching;
soft and elastic;
free of chemicals and odor.

All this can be had only with peroxide-bleached goods at no increased cost.

Your mill knows how or can find out from us.

Peroxide Advice Free to Mills.

The Roessler & Hasslacher Chemical Co.

NEW YORK

MI - CLEANSER

The Perfected, Non-Soluble, Cleaning, Polishing Cleansor, Deodorizing Scouring & Scrubbing Powder. "Six in One"



Trade Mark Reg. U. S. Pat. Office

Your Mill Supply House will furnish you Mi-Cleanser, or order direct from the factory.

Champion Chemical Co.

Charlie Nichols, General Manager
Asheville, N. C.

Bobbins and Spools

True-running
Warp Bobbins
a Specialty

The Dana S. Courtney Co.
Chicopee, Mass.

Southern Agt, A. B. CARTER, Gastonia, N. C.

MILL NEWS ITEMS OF INTEREST

Spindale, N. C.—The Stonecutter Mills have let contract for the erection of 25 new cottages in the mill village.

Stanley, N. C.—Fire in the boiler room of the Mariposa Mills near here put the mill out of commission. It is thought the boilers are damaged beyond repair.

Charlotte, N. C.—There is a rumor of a large mill to be built at this place and operated upon fine colored goods. There is good reason to believe that it will be built.

Lafayette, Ga.—The Lafayette Mills here have not been sold to the Skenandoah Cotton Mills of Utica, N. Y., as reported last week. The latter company purchased the Lafayette Mills at Lafayette, Ala.

Charlotte, N. C.—The Spinners Processing Company, which was recently organized here by K. S. Tanner and S. E. Elmore, of Spindale, and C. W. Johnston, of Charlotte, has let contract for the erection of a warp mercerizing plant. It is planned to install equipment for an initial daily capacity of between 90,000 and 100,000. Potter and Shackelford, of Greenville, were awarded the building contract.

Selma, Ala.—The management of the cotton mills of the Selma Manufacturing Company announces that the mills will be closed for several months, perhaps through the summer, on account of a recent accident at the plant, which caused damage amounting to approximately \$10,000 to the main engine of the plant. The closing of the plant will throw 500 out of employment. Superintendent Nelson of the Selma Manufacturing Company states that important improvements throughout the mills will be made.

Ware Shoals, S. C.—The contract for the erection of 25 modern cottages and 50 bungalow apartments, built in one for the Ware Shoals Manufacturing Company at Ware Shoals, was let to the Minter Homes Company of Greenville. The houses are to accommodate the employees who will work in the addition to the mill, and work is to begin at once, it was announced by officials of the Minter Homes Company.

The cottages will contain four rooms, hall and bath. The bungalow apartments will consist of four rooms and bath, but will be built in a row and connected, a style that is much in vogue in the larger cities of the nation. The buildings are to be constructed of hollow tiles.

Announcement was made some time ago that the capacity of the mill was to be enlarged, and it is to care for the additional operatives that the contract for the houses was let.

Plans for the building were drawn by J. E. Sirrine & Co.

York, S. C.—Seventy-five per cent of the machinery of the Cannon Mill, at York, S. C., is now operating on a four-day a week schedule. The mill employs over 400 operatives. The Lockmore Mill, which has been closed at York for two weeks, resumed operations Monday.

Lafayette, Ala.—The sale of the building here which was erected some years ago as the Lafayette Cotton Mills to the Skenandoah Cotton Mills, of Utica, N. Y., has been confirmed by the latter company. The building will be equipped for the manufacture of yarns. A report last week that the Skenandoah Mills has

bought the mill at Lafayette, Ga., is incorrect. The sale referred to the building here.

Savannah, Ga.—Theodore L. Hamilton, special representative of the Western Reserve Cotton Mills Company of Quitman and Millen, is in Savannah selling stock in the Quitman concern. He represents Mason Brothers, the Ohio rubber people who bought and are developing the the South Georgia Mills, converting them into plants for the manufacture of auto tire fabrics. The Quitman Mills are now operating double time.

Anderson, S. C.—At the annual meeting of the Riverside-Toxaway Mills all of the officers and directors were re-elected. At the Riverside, B. B. Gossett was re-elected president and treasurer; James P. Gossett, vice-president; Sam H. Lander, assistant treasurer; Joe A. Farmer, secretary. The directors elected are: B. B. Gossett, James P. Gossett, J. E. Mitchell, Philadelphia; J. J. Mitchell, Jr., W. C. Cleveland, Alfred Moore, H. H. Watkins, James P. Gossett was elected president and treasurer of Toxaway Mill; B. B. Gossett, vice-president; Sam H. Lander, assistant treasurer; Joe A. Farmer, secretary. The directors for this mill are: Jas. P. Gossett, B. B. Gossett, Alfred Moore, W. C. Cleveland, H. H. Watkins, B. E. Geer, W. S. Lee and H. T. Crigler.

Huntsville, Ala.—The Merrimack Manufacturing Company, of Lowell, Mass., is preparing to build a \$1,000,000 cotton mill here. This will be the third mill they have located at this point. Under the original plan the Merrimack Company intended erecting eight mills at Huntsville. Local residents believe the resumption of building activities is merely in accordance with the first plan.

J. J. Bailly, agent for the manufacturing company, stated that plans for the new mill had not yet been completed, but that an official announcement of the building and the plans would be issued in a few days.

Ward Thoron, treasurer of the company, and J. C. Wadleigh, of Lowell, Mass., general agent, were in Huntsville recently, looking over the two mills belonging to the company and the acreage which was bought for the location of the eight mills in the original plan.

This is the second great manufacturing concern to locate in Alabama in the past six weeks, the other being the shirt factory and dye house established at Kilby Prison by the Reliance Manufacturing Company, of Chicago. These developments show, beyond a shadow of doubt, the lay of the land in the textile industry.

Greenville, S. C.—Contract will be let in the next few days for a three-story addition to Victor Monaghan Mill which will greatly increase the floor space at the mill and provide better working conditions, announcement to that effect being authorized by W. E. Beattie, president of the Victor-Monaghan Company.

"Erection of the building is merely supplying a need we have felt for a long time," said Mr. Beattie. He explained that the new building, while supplying a great deal more floor space, will not increase the capacity production of the plant, since no new machinery is to be installed, but he explains that there will be an entire rearrangement of the location of machinery which will facilitate the work in a number of respects and provide better working conditions for the employees.

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LANDSCAPE ARCHITECT and CITY PLANNER

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Parks, Real Estate Subdivisions
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Largest Landscape Organization in the South



- 1-CLIPS-For Joining Roof Together.
- 2-Section of Roof.
- 3-Expansion Joint Construction.
- 4-Finished Expansion Joint.
- 5-Cleanout Opening.
- 6-Cast Iron Yoke.
- 7-Wrought Steel Standard.

Our improved method of making Conveyor Pipe Joints. Using expansion band to join pipe together. Both air and weather tight without the use of solder.

We also make Sheet Metal casings for chain drives, Slasher Hoods, Dust Collectors, etc.

Send us your orders for anything to be made of pieced Sheet Metal

J. N. McCAUSLAND & CO.

"IN THE BUSINESS 38 YEARS"

221 South Tryon St.

CHARLOTTE, N. C.



CLEAN QUALITY

SUPERIOR SERVICE

If a drive is worth belting, it is worth belting well. Why be satisfied with a mediocre belt? Cheap belting is false economy—the safest investment in the world has always been REPUTATION.

Charlotte Leather Belting Co.

Charlotte, N. C.

The new building will be located between the cloth room and the main building, three stories high, and will join the other two buildings, making all one building. Plans for the structure are now being prepared by J. E. Sirrine & Company, mill engineers of Greenville, and will be completed within the next few days.

Mr. Beattie and other officials of the mill estimate that several the building.

Isaqueena Mill Sale in Court.

Greenville, S. C.—The Courtenay Cotton Mill suit, which grew out of the sale of this property to W. L. Gassaway and other stockholders of the Isaqueena Mills, at Central, has been referred to the Master in Equity of Greenville County for a decision, an order to this effect having been signed by Judge Frank B. Gary and filed with Clerk of Court Harry A. Wargan. The suit involves \$1,800,000, the purchase price of the Courtenay Mill, which is located at Newry.

The immediate point at issue in the suit involves payment of \$270,000 in notes the Courtenay interests maintain are still due them, although the ownership of the mill itself is at stake. W. L. Gassaway agreed to pay \$1,800,000 for the plant in 1920 and the \$270,000 is still due. Should Gassaway and the Isaqueena Mills win out in the suit the mill will be turned back to the Courtenay interests and all money paid over to them for the mill will have to be refunded.

The Gassaway interests, in the role of defendants, base their contention that they are not bound to pay the notes still due and that the mill in its entirety should be turned back to the former stockholders upon claims that Campbell Courtenay, former president, defaced and altered the books of the company and that he misrepresented the profits and earning capacity of the mill to Gassaway. As a result of the alteration of the books the Isaqueena interests allege that they are now liable to the Federal Government for additional taxes in the sum of \$125,636 and for penalties of \$132,114.

The suit has been on the docket of the Court of Common Pleas for two terms.

Will Erect an Addition to Kannapolis Y. M. C. A.

The Cannon Manufacturing Company has awarded a contract to the Goode Construction Company to erect an addition to the Y. M. C. A.

at Kannapolis. M. E. Boyer, Jr., is hence and rebuilding it in conformity with the part to be built now.

The new wing to the building will include an auditorium, seating 1,500 persons, a billiard room, a shower room, a bowling alley, class and banquet rooms. The present plan calls for the demolition of the old part of the structure three years When completed, the "Y" building will have cost \$125,000. Contracts for the heating and plumbing have not yet been placed. Concrete and tile will be the material from which the new building will be constructed. The part to be

erected by the Goode firm will cover a plot of land 60 by 130 feet and will cost \$60,000.

Saco-Lowell Shops Buy Building in Charlotte.

The Saco-Lowell Shops has purchased a building site of approximately two-thirds of a city block on Mint street in Charlotte and have tentative plans for erecting a building thereon to serve as Southern headquarters of the company. The purchase was consummated through Rogers W. Davis, Southern manager of the Saco-Lowell Shops. Mr. Davis stated that no immediate construction was planned by his company, and that it was unlikely that the building would be begun this year. At present the Saco-Lowell Shops maintain offices in Charlotte and also a large repair shop. The ultimate plans of the concern, it is understood, is to combine the two into a large building that will meet the growing business of the company in the South.

The lot purchased by the company adjoins the one upon which the Textile Mill Supply Company will erect a large building to serve as a permanent home for this well known supply company.

Uniformity of Yarn Diameter.

The March issue of the Journal of the Textile Institute gives a very complete description, with illustrations, of a device for measuring the uniformity of the diameter of yarn. The essential parts of the apparatus are a light presser foot so mounted that microscopic differences in the diameter will lift or lower the foot and a reel for rolling or unrolling sensitized paper or film on which the results are recorded.

The vertical motion transmitted to the presser foot by the difference in yarn diameter is magnified by projecting a beam of light upon a mirror mounted on the foot and from there reflected upon a sensitized paper or film which is moved at a fixed speed determined by the rate at which the yarn is passed through the apparatus.

A similar device for investigations of yarn variation was developed by the Cotton Research Company about two years ago and has given some very valuable data for their research work. One of the results of their work which is of particular interest is the fact that very regular periodic thick or thin places are present in practically all yarn.



MOTORS—on Hand

- 1—25 H. P. General Electric, 2200 volt, 600 r. p. m.
- 1—100 H. P. Westinghouse, 550 volt, 690 r. p. m.
- 1—75 H. P. General Electric, 2200 volt, 900 r. p. m.
- 1—50 H. P. General Electric, 2200 volt, 875 r. p. m.
- 1—15 H. P. General Electric, 550 volt, 1200 r. p. m.

Used, good condition.

Also Robbins & Myers new Motors, from 50 H. P. to 1-10 H. P., 220 and 550 volts.

SOUTHERN TEXTILE MACHINERY COMPANY

Greenville, S. C.

Cocker Machine and Foundry Company Gastonia, N. C.

BUILDERS OF TEXTILE MACHINERY

Linking Warpers Linkers Baling Warpers Baling Attachments
Section Beam Warpers Long Chain Beamers Short Chain Beamers
Warp Splitting Machines Warp Dyeing Machines Warp Doublers
and Splitters Warp Coilers Boiling Out Boxes and Warp Washing
Machines Dye House Ballers.

DIXON LUBRICATING SADDLE CO.

BRISTOL, RHODE ISLAND



Use Dixon Patent Stirrup Adjusting Saddles, the latest invention in Saddles for Top Rolls of Spinning Machines. Manufacturers of all kinds of Saddles, Stirrups and Levers.

WRITE FOR SAMPLE

THE CHOICE OF A HUMIDIFYING SYSTEM

must be one that for simplicity with great capacity and economy in maintenance produces uniformly such conditions that may be determined for the different requirements of the work. In the American Moistening Company's method of humidifying, all such requirements are GUARANTEED.

Our COMINS SECTIONAL HUMIDIFIERS
Our FAN TYPE and HIGH DUTY HUMIDIFIERS
Our VENTILATING Type of Humidifier (Taking fresh air into the room from outside)
Our ATOMIZERS or COMPRESSED AIR SYSTEM
Our COMPRESSED AIR CLEANING SYSTEM

Our CONDITIONING ROOM EQUIPMENT
Our AUTOMATIC HUMIDITY CONTROL (Can be applied to systems already installed)
Our AUTOMATIC TEMPERATURE CONTROL
Are all STANDARDS OF MODERN TEXTILE MILL EQUIPMENTS.

AMERICAN MOISTENING COMPANY

RUSSELL GRINNELL, President

BOSTON, MASS.

FRANK B. COMINS, General Manager

SOUTHERN OFFICE, Atlanta Trust Company Building, ATLANTA, GEORGIA

TALLOW—OILS—GUMS—COMPOUNDS

TEXTOL, A new product especially for Print Cloths. A complete warp size, requires no addition of tallow



Tallow, Soluble Grease, Soluble Oils, Gums, Glues, Gum Arabol, Lancashire Size, Waxes, Finishing Pastes, Soaps, Glycerine, Ready-made eavy Size, Sago and Tapioca Flours, Dextrines, China Clay, Soluble Blue Bone Grease, Bleachers' Blue.

SPECIAL COMPOUNDS FOR WARPS, WHERE STOP MOTIONS ARE USED.

WEIGHTING COMPOUNDS FOR COLORED AND WHITE WARPS. FINISHING COMPOUNDS FOR ALL CLASSES OF FABRICS.

The Arabol best grades of cotton warp sizing compounds make the "finest weaving and will hold the fly."

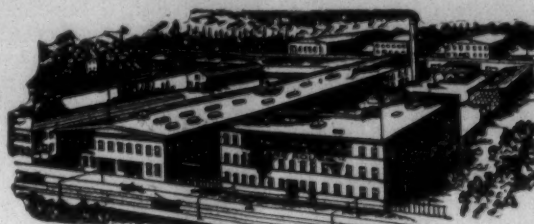
These compounds are based on the best practical experience and the best materials used in their manufacture.

The Arabol Manufacturing Co.

Offices: 100 William Street, New York.

Southern Agent: **Cameron MacRae, Concord, N. C.**

R. P. GIBSON, South Carolina Agent, Greenville, S. C.



Factories: Brooklyn, N. Y.

GUY L. MELCHOR, Ga., Ala. and Tenn. Agent, Atlanta Ga.

If I Were Building a Mill.

(Continued from Page 15)

Looms.

1,452 looms, 36-in. with 40-in. reed space, 2-harness plain, automatic bobbin changing type with feeler motion and warp stop motion, chain friction. Speed 165 picks per minute. Production approximately 58,000 pounds, 53 hours. Overhead carrier system for handling loom beams.

Baling.

One baling press.

Folding and Inspecting.

Two folding machines. Speed 90

yards per minute.

Humidifying.

Humidifying system known as "Manomet System." This system is now used in the Manomet Mill No. 2 at New Bedford, Mass. Humidifiers are placed in all rooms of mill excepting picker and speeder rooms.

Drives or Transmission.

Main shafts driven direct from motors, counter shafts driven from main shafts by belts on cork-insert pulleys, driving pulleys being slightly larger than driven pulley to insure constant speed. All hangers, ball bearing, self-aligning type.

Bale breakers under drive by belt; pickers over drive by belt;

cards under drive by belt; draw frames over drive by belt; slubbers,

intermediate fine frames and spinning frames, over drive belt, adjustable binder frame with vertical tighteners; spoolers as pickers; over drive belt; spoolers as pickers; slashers as pickers; looms as pickers; folding machines as pickers; baling press as pickers.

for number 20s.

Layout.

Breaker picker, draft 1.9; weights 16-oz. lap.

Intermediate picker, draft 3.5; weights 14-oz. lap.

Finisher picker, draft 3.4; weights 12-oz. lap.

Card, draft 122.06; weights 42 gr. sliver.

Breaker draw frame, draft 6.0; weights 42 gr. sliver, 6 doublings.

Finisher draw frame, draft 6.0; weights 42 gr. sliver, 6 doublings.

Slubber, draft 3.42; weights .85 Hk. Rov.; twist 1.07.

Intermediate, draft 5.8; weights 2.50 Hk. Rov., 2 doublings; twist 1.89.

Fine frame, draft 6.0; weights 7.50 Hk. Rov., 2 doublings; twist 3.70.

Warp frame, draft 8.0; weights 30s yarn, 2 doublings; twist 25.40.

Filling frame, draft 10.66; weights 40s yarn, 2 doublings; twist 22.00.

Asst. Supt.

Manufacturers of Speeders, Skewers, Warp Bobbins, Filling Bobbins, Cap Spinning Bobbins, Northrop Loom Bobbins, Twister Bobbins, Twister Spools, Warper Spools, Comber Rolls, Quills, Underclearer Rolls (plain or covered).

U S Bobbin & Shuttle Co.

57 EDDY STREET

PROVIDENCE, R. I.

SHUTTLES

We make a specialty of Shuttles for all makes of looms, both plain and automatic. Correspondence solicited.

Established 1896

Incorporated 1914

LOWELL SHUTTLE COMPANY

Manufacturers of

BOBBINS SPOOLS SHUTTLES

Write or Telegraph for Quotations

Office and Factory: 19 Tanner St., LOWELL, MASS

Textile Grinding Machinery Of All Kinds



Send in Your Old Grinders to be Repaired

Southern Agent, E. M. Terryberry, 1126 Healy Bldg., Atlanta, Ga.

B. S. ROY & SON CO., WORCESTER, MASS.

Established 1868

Number Twenty-eight.

I would consider a 25,000 spindle mill on 60s to 80s combed yarn. I would build the bale breaker room large enough so that 50 bales of cotton can be laid down around the bale breaker. I would install a No. 4 Kitson bale breaker with extended apron and connect to a No. 6 bronze blade fan suspended to the ceiling and connect the discharge from fan to a C. O. B. machine setting on the floor. From the C. O. B. machine I would have a 12 $\frac{1}{2}$ -in. conveyor pipe leading to a No. 9 condenser in picker room, where I would drop the cotton on the floor in bins ready for the breaker openers. I would also have a Kitson 24-in. waste feeder connected with pipe leading from bale breaker to fan suction and feed all waste from cards, combers, drawings and all ground roving waste through this feeder. I would adjust the feed on this waste machine so that it would run the same hours as the bale breaker.

Picker Room.

I would install Kitson pickers. I would install No. 5 feeders and breakers combined, connected to automatic hopper feed regulator and 20-in. porcupine beater. Speed 700 r.p.m. "A" frame drive and 7 $\frac{1}{2}$ H. P. motor, 1,760 r.p.m., full load speed. On intermediate lappers would use 16-in. two-blade rigid beaters, running 900 r.p.m., and giving 45 beats per inch. "A" frame drive and 5 H. P. motor, 1,760 r.p.m., full load speed. On finishers I would use a three-blade Kirschner carding beater running 900 r.p.m. and giving 55 beats per inch. "A" frame drive and 5 H. P. motor, 1,760 r.p.m., full load speed. I would make laps weigh 16 $\frac{1}{2}$ oz. on breakers; 14 $\frac{1}{2}$ oz. on intermediates and 12 $\frac{1}{2}$ oz. on finishers.

Card Room.

For the cards I would lay these out to give ample space between the cards, and also plenty of alley room. I would set up the cards with the backs to the side walls of the mill, allowing 3 ft. 6 in. in the clear between the coils, and allow a big 8-foot or 10-foot alley between the sides of the cards and the end wall. If the mill is built 78 feet wide, I would put five lines of cards across the mill; if the mill is 104 feet wide, seven lines across the mill. I would run the cylinders 165 r.p.m. and doffers 6 turns. Production 55 pounds per card for 10 hours on 42 gr. sliver. I would use No. 110 wire on the cylinders and No. 120 wire on doffers and top flats. I would buy cards 40 in. wide and doffer 27 in. diameter. I would use a group drive on the cards.

Combers.

On the best known type of English machine, on the sliver lap machine, I would put up 22 ends of 42 grain sliver at the back and with a draft of 1.54 would make a 600 grain lap. On the same make of ribbon lap machine, put up six ends from sliver lap machine weighing 600 grains each with a draft of six and getting a 600 grain lap on the ribbon lap machine. I would use metallic rolls on sliver lap and leather covered on the ribbon lap machine. On the same make of

combers, I would put up six laps weighing 600 grains each and make a 46 grain sliver and run the comber 90 nips per minute.

On the best known American comber, on the sliver lap machine, I would put up 18 ends of 42 grain sliver at the back and with a draft 1.68 would make a 450 grain lap. On the same make of ribbon lap machine, put up 4 ends from sliver lap machine weighing 450 grains each and with a draft of four make a 450 grain lap. Use metallic rolls on sliver lap and leather covered rolls on ribbon lap machine. On the same make of comber, put up eight laps weighing 450 grains each and make a 46 grain sliver, running the comber 115 nips per minute. I would use a group drive in the comber room.

Drawings.

I would use one process of drawing with leather covered rolls. Bottom front rolls 1 $\frac{1}{4}$ -in. diameter. The three top back rolls to be solid leather covered with bushings on the ends, the front top roll to be leather covered and with ball bearings. Use a 46 grain sliver from the comber with a draft of 5 making a 55 grain sliver from drawings. I would not run front roller on drawing over 200 r.p.m.

Roving Machinery.

I would use four processes of roving consisting of 6x12-in. slubbers, 10x5-in. first intermediates, 8x4-in. second intermediates and 6x2 $\frac{1}{2}$ jack frames.

On slubbers I would use a 10-in. space with flyer speed 600 r.p.m. with a 55 gr. sliver from the drawings and make a .54 hank roving, the draft being 3.60. Use a 1 $\frac{1}{4}$ -in. diameter bottom front roll, the two back top leather covered rolls to be solid and the front top leather covered rolls to be ball bearing, and would have the top leather covered rolls on first and second intermediates and jack frames arranged the same way. On the first intermediates, I would use 8-in. space and a flyer speed of 830 r.p.m. Use 1 $\frac{1}{4}$ -in. diameter bottom front roll. With a .54 hank in creel and a draft of 5.25 I would make 1.42 hank roving. On second intermediates, I would use a 6-in. space and a flyer speed of 1,080 r.p.m. Use 1 $\frac{1}{4}$ -in. diameter bottom front roll. With 1.42 hank roving in creels and a draft of 6.00 I would make 4.26 hank roving. On jack frames I would use a 4 $\frac{1}{4}$ -in. space and a flyer speed of 1,425 r.p.m. Use 1 $\frac{1}{4}$ -in. diameter bottom front roll. With 4.26 hank roving in creels and a draft of 7.04 I would make 15.00 hank roving. Cone pulleys on all frames are to have cork inserts.

In laying out the above drafts I have considered making an average number of 70s. In figuring this layout I have not given number of spindles required nor length of frames, as these things would be governed by different conditions in different mills. I would use a 4-frame motor drive throughout the speeder room.

Spinning Room.

On spinning I would have 252 spindles to the frame, 1 $\frac{1}{2}$ -in. ring, 3 $\frac{1}{4}$ -in. space, No. 1 flange rings, 6-in. traverse, tape drive, 8-in. cylinder, standard spindles, 15-16-in. whirl. I would use bobbins $\frac{1}{8}$ -in.

diameter slightly pointed on top. I single yarn and double all ply yarn would use 4 frame drive with 25 on Foster doublers, and would spool H. P. motors, 1,160 r.p.m., full load all ply yarn going to warpers, using ball tension with slub catcher or speed.

I would dispense with spoolers on

Continued on Page 26

STRUCTURAL and Bar Steel, Ornamental Iron, Lupton Steel Windows, Chicago Tanks and Towers. REINFORCING BARS AND LUPTON STEEL WINDOWS in stock in our Charlotte warehouse. Immediate shipment. We are prepared to cut and fabricate reinforcing bars. Send plans or list of material for prices. Our Engineering Force is at Your Service.

SOUTHERN ENGINEERING COMPANY

504 Realty Building

CHARLOTTE, N. C.



Is it not the natural conclusion that a factory devoted almost entirely to the production of textile brushes should develop Comber Dusters of superior quality and construction?

Our knowledge of cotton mill requirements, as it relates to brushes, enables us to comprehend the important features in the various and varied uses, resulting in a product of exceptional merit.

Here are four numbers that embrace all requirements of Comber Dusters, each one the best that can be had anywhere at the price.

No. 42, horsehair, full stock, wire drawn, brush part 7 inches long; solid hickory, natural finish handle. Price per gross-----\$36.00

No. 41, horsehair, full stock, wire drawn, brush part 8 $\frac{1}{2}$ inches long; solid hardwood green-stained handle. Price per gross-----\$42.50

No. 191, horsehair, full stock, peg construction, brush part 8 inches long; 14-inch solid hickory, natural finish handle. Price per gross-----\$60.00

No. 292, best grade China bristle, peg construction, brush part 6 inches long, set close and compact; solid hardwood, natural finish handle, 14 inches long. \$60.00

Every brush that leaves this factory carries with it our rigid guarantee of absolute satisfaction or the brushes may be returned at our expense.

Atlanta Brush Co.

Atlanta, Ga.

The Belgian Cotton Industry.

Renewed activity in the local industry and increased re-exports, especially to the Netherlands and Central Europe, have considerably diminished stocks of raw cotton in Belgium despite larger imports during the last half of 1921.

The consumption of raw cotton in Belgium during the six months February 1-July 31, 1921, was: American, 42,710 bales; Indian, 37,658 bales; Egyptian, 756 bales; other, 1,162 bales; total 82,286 bales. For the six months July 31, 1921-February 1, 1922, the cotton consumption was: American, 67,091 bales; Indian,

51,231 bales; Egyptian, 1,975 bales; other, 1,648 bales; total, 121,945 bales.

Total imports of raw cotton into Belgium during the fourth quarter of 1921, according to the latest Belgian statistics (monthly figures not being available), were 21,597,660 kilos (or, at 216 kilos per bale, 99,989 bales). Of this total, 9,153,471 kilos arrived direct from the United States, 6,260,257 kilos from India, 1,392,415 kilos through Great Britain, 1,216,462 kilos through France, 721,239 kilos by way of Holland, 577,801 kilos via Germany, and 561,321 kilos from Egypt.

Re-exports of raw cotton during the same quarter amounted to 8,556,982 kilos, or 39,615 bales. The principal destinations of these shipments were: Germany (2,375,448 kilos), France (3,086,077 kilos), Netherlands (1,521,418 kilos), and Switzerland (637,598 kilos).

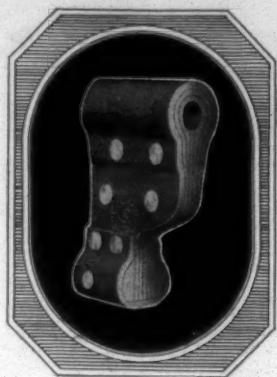
Paralleling the increased consumption of raw cotton, the spindles in operation have increased from 1,420,839 on February 1, 1921, to 1,548,001 on July 31, 1921, and 1,584,601 on February 1, 1922, of which last number 473,593 were twisting and 1,111,008 spinning. Owing to the part time which is still prevalent in Belgium and the variable working hours of different mills, the increase in spindleage is apparently less in proportion than the increase in consumption, the discrepancy being taken up by augmented operating

time. On the basis of figures compiled by La Textile (Ghent), it is estimated that during the six months ending February 1 the average number of idle hours per spindle was 370, or about 32 per cent of the total possible working time, as against 621 hours for the previous six months, or 48 per cent (figuring the period February 1 to July 31, 1921, on the basis of the 54-hour week, while the 48-hour week is now required). The policy has been rather to operate a maximum spindleage at reduced hours instead of cutting down machines operating, with the result that during the last half of 1921 the spinning industry may be regarded as having worked at about two-thirds capacity.

The labor efficiency of Belgian cotton mill operatives is generally considered by local manufacturers as not having diminished since the war. Present wages of weavers range from 1.25 francs per hour for two-loom work on plain and twilled gray cotton goods to 2.75 francs for an operative running six looms, with additional allowances for pattern and jacquard work. Weavers of pattern cloths working with more than eight blades receive 2 per cent bonus per blade, while jacquard workers receive 10 centimes per hour extra. The wages of spinners working on frames of 500-800 spindles approximate 140 francs per week of 48 hours; those on frames of 800 spindles and over run progressively to 170 francs per week of the same normal time. At current exchange (11.95 francs to the dollar), weavers' wages on plain fabrics range between 10 and 23 cents per hour, and spinners' between 24 and 31 cents.

Some notion of the drop in prices since the October-December quarter of 1920 may be gathered from the fact that while exports of bleached and unbleached cotton yarns rose from 1,478,311 kilos during the fourth quarter of 1920 to 1,977,395 kilos for the corresponding period of 1921 (an increase of 34 per cent), the value of these exports fell from 25,285,261 francs to 17,153,143 francs (a decline of 32 per cent). The movement of prices during the last quarter of 1921 and January, 1922, has been steadily downward. For example, American 18A on bobbins (the Belgian numbers indicate the number of kilometers per half kilo), the finest of the lower counts, sold at 12.75 to 13 francs per kilo on October 4, but the price had receded to 10.75 francs on December 20 and 8.90 francs on February 7. Yarns of Indian cotton showed a parallel movement; Oomrah 16A weft during the same interval dropped from 10.50-10.75 francs per kilo on October 4 to 8.75 francs on December 20 and 7.90 francs on February 7. Fabrics did not seriously reflect the drop in yarns until December, but unbleached calicos moved from 3.80 per meter on October 25 to 3 francs on December 20 and 2.75 francs on February 7, while the base price of zephyr (shirting) on the same dates dropped from 3.60 francs to 2.50 francs, and then to 2.10 francs.

It will appear that this downward movement of prices in both yarns and fabrics has occurred parallel to



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at the same time operate the mill with a less number of quills.

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CHARLOTTE, N. C.

the upward march of franc-dollar exchange, which was 15.50 (the maximum check quotation) on November 26, 14.40 on December 1, 12.85 on December 15, and 12.65 on January 16. The fact, however, that the local yarn and finished goods market has been less active since the opening of 1922 indicates that the price regression is not entirely a matter of exchange but partly a result of slackened demand, and quite distinct from considerations connected with fluctuations of the raw staple.

If the present annual production of yarns in Belgium is estimated at 35,000,000 kilos, the export figures for 1921 (7,400,000 kilos) indicate that about one-fifth of the yarn output is being sold abroad, this proportion being practically twice as large as prior to the war. This increase is due in large measure to German purchases of bleached and unbleached yarns, which were four times as large in 1921 as in 1913, and to augmented Dutch purchases. Belgian manufacturers are also making strenuous efforts to regain Argentine, Brazilian, and Chilean markets lost during the war, and it is understood that banking agreements have been made covering credits up to one year to weavers in Roumania and Czechoslovakia, though no finishing credits appear to have been negotiated.

While the situation of the cotton spinning mills, on account of wider European markets, is on the whole encouraging, the status of the cloth mills is not so favorable, since they depend on exports for disposing of at least two-thirds of their capacity. Owing to the loss of overseas markets, even during 1920 the total volume of exports of finished fabrics amounted to only 54 per cent of the 1913 figures, and in consequence of the general reaction from overstocking of world markets exports fell in 1921 to one-third of the pre-war normal. An improvement was in evidence during the last quarter of 1921, which, however, did not show exports equal to those of October-December, 1920. Observers closely in touch with the Ghent weaving industry are, in fact, pessimistic as to the ability of the local cloth mills to compete in foreign markets with the output of American and British factories so long as present wage scales continue in force.

The principal export markets for Belgian yarns are Germany, Great Britain, and the Netherlands, with increasing sales in eastern Europe and South America. Approximately half the Belgian exports of fabrics are also disposed of in adjacent countries, but in finished goods Belgium is more dependent upon markets in the Near East (Turkey, Greece, Egypt), the Orient (British India, China, Dutch East Indies), and South America (Argentina, Brazil, Chile, Uruguay).

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Silver Lap Machines	Reels
Ribbon Lap Machines	Quillers
Combing Machines	

COTTON WASTE MACHINERY

Openers	Revolving Flat Cards
Pickers	Derby Doublers
Willows	Roving Frames
Card Feeds	Spinning Frames
Full Roller Card	Spoolers
Condensers	Twisters
Special Spinning Frames	

WOOLEN MACHINERY

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WORSTED MACHINERY

Cone Roving Frames

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WITHERPSOON & WITHERSPOON, SPARTANBURG, S. C.

Manufacturers of
Spartan Compounds,
Tallows and Gums

If I Were Building a Mill.

(Continued from Page 23)

Foster weight tension with slub catcher. I would use 240 spindles per frame on twist, 3½-in. gauge, 6-in. traverse, 1½-in. diameter rings, wet twist, tape drive spindles, 1½-in. whirl, 8-in. cylinder, 1-in. diameter bobbin slightly pointed at the top. The bottom rolls should be of brass and 1½-in. diameter. Twist-ers should be equipped with porcelain guides. I would use 4 frame,

25 H. P. motors, running 1,460 r.p.m., full load speed. I would lay out spinning and twisting with frame pulleys 3½-in. face and not less than 14-in. diameter. I would case harden all bottom front steel rolls in card room and spinning room.

Warping and Cone Winding.

I would put in the following machines to take care of the production from the spinning frames and twist-ers: Foster cone winders, model 30, 100 ends each, with individual motor drive, using 5 H. P.

motors, 1, 765 r.p.m. I would put in Entwistle ball warpers for long chain quiller warps, which are 378 ends, but would equip machine for 504 ends.

I would have a different color bobbin for each hank roving and also a different color bobbin for each number in the spinning and twisting. I would also have different colored spools and doubler tubes for each number.

I would use 2-in. diameter hardwood tubes for doublers. These could be painted different colors on ends to take care of different numbers.

On the spools I would use soft wood heads, 5-in. diameter head and 5-in. traverse with a 2-in. hollow barrel.

I would equip the entire plant with a modern system of humidifying and heating.

Mill Village.

If I were going to lay out a mill village I would buy land enough so that each family would have sufficient lot for garden spot and front yard. There should be sufficient room between the houses fronting each other for a good wide street and a paved sidewalk on each side, and the front yards should be large enough for a lawn and flowers. In this way, I think I should be able to attract the very best class of help. I would build small bungalows, ranging from three to six rooms each, with running water and sewerage in each house.

Longest.

Market Unaffected by Strike.

Philadelphia, Pa.—The substantial curtailment in the production of

cotton goods resulting from the present strike in New England mills will not have any effect on the cotton goods market, according to views expressed at a meeting of the wholesale dry goods group of the Philadelphia Chamber of Commerce.

Stocks in mill hands were generally believed to be substantial when the strike was declared and this fact coupled with unusually quiet market conditions and very little demand were cited as factors that tend to substantiate the belief that despite the prolonged shutdown, the market will not be influenced one way or another. In fact, some of those present estimated that in the face of present demand the curtailment could safely reach one hundred million yards without affecting the market, and no exception to this view was voiced.

During the meeting, it developed that the trade here strongly favors more evenly distributed deliveries of merchandise during the spring and fall seasons, particularly of gingham. It was said, for instance, that the delivery of spring gingham in bulk frequently subjects the jobber to undue hardship, because he is not in a position to supply his customers with wanted merchandise early in the season and give them an opportunity to dispose of it. When deliveries are made in bulk to the jobber, he in turn delivers in bulk to his customers. The latter unhesitatingly cancels if demand is slight and the jobber being without redress and unable to return the goods to the mill is compelled to carry an unnecessarily heavy load and accept a loss if the market takes a downward turn.

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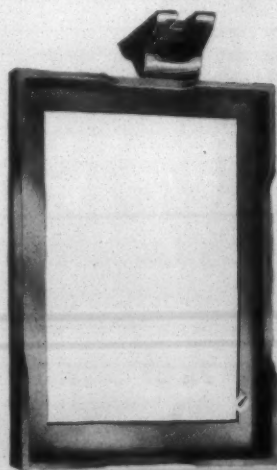
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No more quills scattered over the floor; no more waste and seconds from filled Bobbins thrown out in black oil and dirt, BECAUSE can is held firmly in place and always directly beneath the battery.

CAN TROUBLE AND EXPENSE AT AN END

BECAUSE a good can on our stand will last a life time, while your old can, ready for the junk pile, is good as new one on our stand.

On the market less than six months, yet in that short time we are equipping some of the biggest mills in the South, a sum total of more than sixty thousand looms. THERE'S A REASON.

You need it. Let us demonstrate its need and worth to you. Send us a trial order, say an "alley", preferably a "section", and you will eventually equip.

PRICE \$1.00 EACH

NEWTON J. JAMES & COMPANY, CAROLEEN, N. C.

Knit Goods

Philadelphia.—Very little change suits is still quiet, although sellers was reported in the market for knit goods during the week. The demand for silk hosiery in novelty designs was reported as being improved and this class of goods is selling well, although most of the orders are for small lots. Sport heathers are in good demand, while staple cotton hose is moving very slowly. Underwear is said to be rather quiet.

The total quantity of balbriggan garments sold is probably close to normal, but sellers deplore the fact that practically all orders are for minimum quantities, frequently repeated, thus adding materially to overhead expenses. It is the belief of the trade that prices cannot be lower, especially as there have been some advances recently in yarn prices, and the general opinion is that buyers should give the manufacturers an opportunity to figure their production requirements in advance. There is no change in the prices for balbriggan garments; union suits are quoted at \$5.50 to \$6 for standard 6½-pound garments, and two-piece suits are offered at \$2.75 to \$3.25 a dozen. There is little or no call now for heavier garments for fall, nor is any business expected until September.

There was a better demand for novelty silk hosiery during the past few days, as the weather grows more seasonable. Heathers for summer use are also selling well, while cottons are receiving a minimum of attention. Prices are unsettled owing to financial conditions of some sellers, but a standard market price on a 260 needle, 45 thread tram silk woman's stocking, fashioned, is about \$12 a dozen. This grade can be bought from some sellers as low as \$10, it is understood. Cotton prices remain steady, and a 144 needle combed, fashioned woman's stocking can be bought in the open market at \$2.25 to \$2.50 a dozen. Some distress stocks are offered much lower. The market on 144 needle carded cotton seamless hosiery is 95c a dozen in agents' hands, although some jobbers are quoting as low as 75c, it is understood.

Novelties in knitted underwear are selling well, but staples are not being taken in any appreciable quantities, it is reported. Scarves of artificial silk, in bright colors, such as Roman stripes, are selling well in a wide range of prices, with \$15 a dozen, which is slightly higher than the lowest grade, as the most popular price. These scarves can be bought as low as \$10.50 a dozen. Artificial silk sweaters, in both smock and tuxedo models, are still moving well in bright colors and black. The range continues to go up from \$42 a dozen on tuxedos, and from \$36 on smocks. Low end merchandise is selling best. There is less demand for worsted sweaters, except for navajo designs, which are moving in fair volume at about \$12 a dozen. The demand for bathing

state that they are taking frequent orders for minimum quantities of low end merchandise. One-piece suits are most popular for both men and women, it is reported. Prices on these suits are from about \$18 a dozen up for men and from \$19.50 up for women. Two-piece suits in the same grade are \$1.50 a dozen more.

Comparative Efficiency of Southern and Eastern Labor.

Washington.—The study of the comparative efficiency of labor in the North and the South, to be made by the committee recently appointed by Secretary of Labor James J. Davis, will include the textile industry among the trades to be surveyed.

Ethelbert Stuart, director of the bureau of labor statistics of the U. S. Department of Labor and chairman of the committee, has called an organization meeting of the committee for May 31 to be held in Washington. George E. McElwain of the Babson Statistical Bureau, secretary of the committee, has been instructed to notify the members of the meeting.

The initial meeting, Mr. Stuart said, will be for the purpose of agreeing on a program and a method of procedure. It will be continued for several days into June so that a complete program and agenda of the final report may be prepared.

Ten cities evenly distributed in the North and South, and including Chicago, Birmingham, New Orleans, and Boston, will be included in the study.

The cotton textile industry will in all probability be among the first industries surveyed because of the prominence of the industry in both

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Break at Weld.

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Machinery

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using Sizol

THE SEYDEL MFG. COMPANY

JERSEY CITY, N. J.

Sizings

Softeners

Finishings

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Cotton Goods

New York.—Due to the rapid advance in cotton prices during the week, buying of cotton goods increased very appreciably and trade as a whole was better than it has been in some weeks. Prices were moved up by the mills to meet the higher raw material costs. Buyers did not show a disposition to bid prices up, but bought moderately and generally for delivery during the next two and three months. Buying by jobbers was considerably better, many of them who had previously been delaying their fall purchases of staple goods coming into the market in a substantial way. Prices would have doubtless advanced much more rapidly if retail trade had not continued slow, with a marked tendency by consumers to hold out against higher prices. It is thought that cloth prices will again move up if the present cotton rise is continued.

During the week, prices on print cloths, sheetings, bleached cottons and other staples were advanced a quarter cent a yard. It is said in the market that the necessity for further curtailment by cloth mills will be obviated if the present buying movement can maintain its strength. The reduction of output on account of the New England strike is beginning to be felt in the market. Most of the buying for the week was of unfinished goods, but it is felt that tendency on the part of wholesalers to again come in the market is an indication of a growing confidence in the likelihood of higher prices for some time at least.

Very general buying of gray cloths, sheetings, drills and fine cottons was reported as the week closed. The lots taken were not very large but many converters and manufacturers bought liberally in comparison with the light operations of recent weeks. The large printers and bleachers are covering their wants very moderately as many of them are satisfied with what they have under order for May and part of June and cannot induce mills to go much beyond June at current prices.

The business in narrow goods was active in the print cloth division and bids were frequent enough at 8c for 64x60s and 9c for 68x72s for June-July delivery. May and June goods were sold at these figures and the price was declined for later goods. Sales of 820 goods were made at 5½c, 9.50s at 4¾c and 10.55-yard goods at 4 7-16c. It was stated that sales of 4-yard 80s were made at

11¼c, and it was hard to do better than 11¼c on Southern goods. Some holders want 12c.

Heavy sheetings for the bag trades moved well. Sales of 4.70s were made at 7¾c in some places and advanced to 8c; 4.25 yard goods at 8¼c; 4-yard 48 squares at 8¾c; 4-yard 56x60s at 9¼c, advanced to 9½c; 2.85s at 11¼c; and 5.50s at 6¾c, advanced to 6¾c in several places.

Advances of ¼c a yard were made in sales of 3.50, 4-yard and 4.20 sateens, 39 inches wide. There was some further business done in very fine combed yarn warp sateens for the underwear trades. More activity was reported in voiles, lawns and organdies for nearby delivery.

Cotton duck markets were quite active buyers, getting the benefit of stock goods at prices ranging around a basis of 60 off for wide duck. Some houses have now reduced their discounts from 2½ to 5 per cent on any goods to be made, but prices are still irregular owing to surplus stocks in some places and an eager desire for business. Hose and belting duck has moved up 2c a pound in some of the larger houses, and prices are now 5c a pound above some of the low prices accepted in competitive sales in the past month.

Prices were quoted as follows:

Print cloths, 64x60s, 6½ cents; 38½-inch, 64x64s, 8¼ cents; brown sheetings, Southern standards, 11½ to 12 cents; tickings, 8-ounce staples, 25 cents, nominal; staple gingham, 16½ cents; denims, 2.20s, 17 cents; prints, 11 cents; dress gingham, 20 to 22½ cents.

Tanks

at HOPEWELL, Va.

New Tanks, long leaf pine or fir, 10'6" diameter bottom to 13' ¼" bottom, 6'8", 7'9" and 11'6" high; all new and complete with round screw hoops and couplets, 2¾" stock. Let us have your inquiries. E. I. DuPont de Nemours & Co., Special Products Division, 7038 DuPont Building, Wilmington, Del.



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IN TEXTILE MILLS AND
VILLAGES

HUNTINGTON & GUERRY, Inc.
GREENVILLE, S. C.

The Yarn Market

Philadelphia, Pa.—Increased activity was noted in the yarn markets last week; the sharp rise in raw cotton being responsible for more buying and an upward trend in prices. Knitting yarns were in much better demand and some large orders were placed, the average order being reported as being between 25,000 and 50,000 pounds. Further improvement is expected in view of the continued strength of the cotton market.

Cotton yarns have not yet fully come into line with the higher basis of cotton, but there is evident a decided trend in that direction. This is shown by the prices currently reported for sales of 10,000 pounds and upwards, for deliveries running through June, July and August.

These sales indicate that ordinary yarns have been revalued, thus far, on a basis of 32 cents for 10s single carded skeins, 34½ cents for 20s single carded warps, 35 cents for 20s and 40 cents for 30s-2 carded warps, with the latter reported sold a trifle higher in some cases. Forties have crossed 50 cents a pound in single and two-ply carded cones. Thirties two-ply Southern combed yarns are being taken at 60 cents, five cents up, and spinners say the minimum for 40s-2 is 70 cents a pound.

Weaving yarns were not as active as knitting yarns. The webbing and insulating trades are feeling out the market, but are not buying in any large way. The greater part of the knitting yarns sold were to manufacturers of underwear, the hosiery mills showing a tendency to move very slowly in buying new supplies.

Spinners have advanced their prices from 2c to 5c a pound throughout, but except on the knitting grades sellers have not been able to pass this increase along, despite the fact that nearly all grades are stated to be based on a level too low to be consistent with the present cost of cotton.

Quotations were as follows:

Southern Two-Ply Chain Warps, Etc.		
10s.....29 @	2-ply 26s...34 @	
12s to 14s...30 @	2-ply 30s...36 @	36½
2-ply 16s...31 @	2-ply 40s...50 @	
2-ply 20s...32 @	2-ply 50s...65 @	
2-ply 24s...33 @		
Southern Two-Ply Skeins.		
5s to 10s...28 @	36s.....45 @	
10s to 12s...28½ @	40s.....48 @	50
14s.....30 @	40s ex...48 @	50
16s.....30½ @	50s.....70 @	
20s.....31 @	60s.....80 @	
24s.....32½ @	Carpet—	
26s.....34 @	8s, 3, 4 and	
30s.....35 @	5-ply.....22½ @	23½
Southern Single Chain Warps.		
6s to 10s...29 @	24s.....33 @	
14s.....30½ @	26s.....34 @	
16s.....31 @	30s.....38 @	40
20s.....32 @	40s.....54 @	55
Southern Single Skeins.		
6s to 8s...28½ @	20s.....31 @	32
10s.....29 @	22s.....31½ @	
12s.....29½ @	24s.....32½ @	
14s.....30 @	26s.....33 @	
16s.....30½ @	30s.....36 @	
Southern Frame Cones.		
8s.....30 @	22s.....34 @	
10s.....31 @	24s.....35 @	36
12s.....31½ @	26s.....36 @	38
14s.....32 @	30s.....38 @	36
16s.....32½ @	30s ex...42 @	
18s.....33 @	40s.....55 @	
20s.....33½ @		

Southern Combed Peeler Skeins, Etc.		
2-ply 30s...55 @	2-ply 60s...80 @	
2-ply 36s...58 @	2-ply 70s...93 @	
2-ply 40s...60 @	2-ply 80s...1 05 @	1 10
2-ply 50s...72 @		
Combed Peeler Cones.		
10s.....43½ @	28s.....52 @	
12s.....44 @	30s.....54 @	
14s.....44½ @	32s.....55½ @	
16s.....45 @	34s.....58 @	
18s.....46 @	36s.....60 @	
20s.....47 @	40s.....65 @	
22s.....48 @	50s.....75 @	
24s.....49 @	60s.....90 @	
26s.....50 @		

Eastern Carded Peeler Thread Twist Skeins.

20s 2-ply...40 @	36s 2-ply...52 @
22s 2-ply...42 @	40s 2-ply...57 @
24s 2-ply...43 @	45s 2-ply...62 @
30s 2-ply...48 @	50s 2-ply...75 @
	78 @
Eastern Carded Cones.	
10s.....33 @	22s.....37 @
12s.....33½ @	26s.....39 @
14s.....34 @	28s.....41 @
16s.....34 @	28s.....41 @
18s.....35 @	30s.....43 @
20s.....36 @	

Cotton in Strong Position.

The Merchants National Bank of Boston says in its monthly summary of the cotton industry:

"On some classes of goods, cotton goods markets have improved slightly during the past month with buying a little more general and prices somewhat firmer. On other goods, however, values are slightly lower today than they were a month ago, notwithstanding a slight rise in the cost of the raw material. For example, 38½-inch 64x64 print cloths are now quoted at 8c compared with 7½c last month, but 30-inch 88x80 lawns are now only 11c against 11½c a month ago. Yarns have continued slow, declines of 1 to 3c being noted on standard coarse and medium descriptions.

"Government statistics of consumption of cotton in this country appear to indicate that trade reports as to poor business and curtailment of mill production have been exaggerated. During March the mills consumed 518,450 bales. Last November, when the mills were running more nearly full than in any other month last year, consumption aggregated only 526,610 bales, and the average monthly consumption during the 1919-1920 cotton season, which was a period of great prosperity, was only 535,000 bales. Even allowing for the fact that March was a long month with no holidays, it would appear that consumption has fallen off only about 10 per cent since last November, and is only 12 or 15 per cent below normal.

"Government statistics on spindle hours confirm those on consumption, showing only a very slight decline, through March at least, from the high point reached last fall and winter. When it is considered that a considerable number of New England mills are still idle because of labor difficulties it is evident that the other mills in the country are running on an average not far below normal. Southern mills continue much more active than New England plants. The mills of the South operated during March an average of 265 hours, while those of New England ran only an average of 169 hours.

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J. S. P. Carpenter, Treasurer D. A. Rudisill, Secretary

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Choosing a Mill Site.

(Continued from Page 10)

New England, which properly—so far as freight rates, markets, and competition go—should have been located in the middle west. It was built in New England because the owners wanted to live in New England. Strictly speaking, from an economic basis, it did not belong here at all. Sentiment effects the general location of more plants than is ordinarily realized.

But, it is when we come to the actual location in a community that the services of an engineer are most valuable. All too frequently a client buys a piece of land which is not suitable for his plant and then requires us engineers to get his plant to it.

In my opinion, the site of a building, especially if it is in a country locality, should be high, well drained, with plenty of light and air. Almost every country manufacturing plant requires a stream of water and this water should be free from contamination, if possible, and regular in its supply. The mill should not necessarily be located immediately adjoining the water. It is almost always better to bring the water to the mill than to place the mill on low ground near the water.

It is well, if possible, to locate a plant between competing lines of railroad. If this is not possible the connection should be made with a main line where switchboard facilities are provided, so that a mill is not dependent upon the switching service of a local freight. If the plant is near a city, housing for labor may not be necessary. If houses be provided, care must be taken to locate the village in a well drained and, if possible, a well wooded section.

The engineer must think out in advance how he will arrange his side tracks, his drainage, and provide for the future expansion, not only of the plant but also of the village. If there are any reservoirs, they must be located, and provision made for coal piles and storage buildings.

In my opinion, it is most desirable to run a preliminary survey, if possible, over a site before the final decision as to its purchase is made. Sites look quite different when put down on paper than when looked over by eye.

Cannon Mills Appeal Argued.

Arguments on appeal in the injunction proceedings brought by the Cannon Manufacturing Company and other mills of Cabarrus county against the County of Cabarrus and H. W. Caldwell, tax collector, to prevent the county from collecting taxes for the year 1920 based on the original assessments prior to reduction by the State Corporation Commission, were heard by the North Carolina Supreme Court last week. The case was argued for the plaintiff by Cansler and Cansler and J. Lee Crowell and for the defense by H. S. Williams.

The property of the Cannon Manufacturing Company was assessed by the Board of Appraisers of Cabarrus county for the year 1920 at \$11,635,-

592; The Cabarrus Cotton Mills at \$4,802,785; the Gibson Manufacturing Company at \$1,613,743; and the Franklin Cotton Mills at \$1,428,188. Thereafter, the cotton mills appealed to the State Corporation Commission, acting as State Tax Commission and that body reduced the valuation to \$5,664,554 for the Cannon Manufacturing Company; \$2,234,809 for the Cabarrus Cotton Mills; \$854,289 for the Gibson Manufacturing Company; and \$533,037 for the Franklin Cotton Mills.

The Tax Commission certified these reductions on January 4, 1921. Thereupon the taxes were computed and the sheriff was instructed to collect \$25,739.14 from the Cannon Manufacturing Company at Kannapolis; \$3,958.53 from the Cannon Manufacturing Company at Concord; \$5,529.45 from the Cabarrus Cotton Mills at Concord; \$9,512.92 from the Cabarrus Cotton Mills at Kannapolis; \$5,777.28 from the Gibson Manufacturing Company; and \$3,755.56 from the Franklin Cotton Mills.

These taxes were paid in January, 1920. On June 22, 1921, the sheriff, by order of the county commissioners, demanded additional taxes to the amount of \$11,514 against the Cannon Manufacturing Company; \$2,303.67 against the Cabarrus Cotton Mills; \$509.99 against the Gibson Manufacturing Company; and \$1,634.37 against the Franklin Cotton Mills.

This action was taken, according to the defendants, because of alleged irregularity in the reduction of the original assessment. The corporation commission, it was alleged, three months after the adjournment of the extra session of the General Assembly and after the statutory time for appealing had lapsed, and without notice to the county authorities of Cabarrus heard the appeal of the plaintiffs on an ex parte proceeding agreeing to send two experts to Cabarrus, one of whom had formerly been in the employ of the plaintiffs, to value the property, further agreeing to be bound by their report. Without submitting this report to the State Tax Commission and without an order from the commission, it is alleged, the clerk of that body on January 4, four months after the tax rate had been fixed and taxes levied in Cabarrus, directed a letter to the clerk of the board of county commissioners directing that the valuation of property of the plaintiffs be reduced as set forth, amounting approximately to a reduction of \$16,000 in the revenue of Cabarrus county. Thereupon, it is further alleged, the clerk of the board of county commissioners without authority from it, transmitted to the sheriff tax collector the valuations as reduced. The plaintiffs immediately paid their taxes. The county commissioners, holding that the attempt to change the original assessments was unlawful, ordered them restored and directed the sheriff to collect.

This brought an effort on the part of the plaintiffs to enjoin the county from the collection of taxes. The case comes to the Supreme Court

from the order of Judge P. A. Elroy allowing enjoining the defendants from the collection of additional taxes.

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The fee for joining our employment bureau for three months is \$2.00 which will also cover the cost of carrying a small advertisement for one month.

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During the three months' membership we send the applicant notices of all vacancies in the position which he desires.

We do not guarantee to place every man who joins our employment bureau, but we do give them the best service of any employment bureau connected with the Southern Textile Industry.

WANT position as superintendent of small mill, or carder and spinner. Practical man of 23 years' experience. Now assistant superintendent. Have been superintendent of both yarn and cloth mill and can give gilt-edged references. Address No. 3438.

WANT position as carder or spinner, or master mechanic. Now employed as mechanic, but have had 19 years in carding and spinning and can handle either room in first class manner. Good references. No. 3439.

WANT position as superintendent. Have had similar position in some of the best mills in the South and my long experience and success in the mill fits me to handle plant on either yarns or goods. Fine references. Address No. 3440.

WANT position as cloth room overseer. Now running cloth room for mill on ducks, drills and sheetings, tire fabrics. Giving satisfaction but want better paying place. Good references. Address No. 3441.

WANT position as superintendent. More than 20 years as superintendent and overseer and am high class man in every respect. Long record of satisfactory service. Address No. 3442.

WANT position as master mechanic. Now employed in electric drive mill, but am also familiar with steam drive and am expert in machine shop work. Satisfactory references as to character and ability. Address No. 3443.

WANT position as roller coverer. Five years experience in good shops. Can come on short notice. Prefer mill shop. Address No. 3444.

WANT position as overseer weaving. Long experience and can get results. Good references. Address No. 3446.

WANT position as superintendent. Have been superintendent over 15 years and have handled all classes of work. Competent and excellent manager of help. References. Address No. 3447.

WANT position as superintendent. Experienced reliable man who is now superintendent of large mill, but who wishes to change for excellent reasons. Address No. 3448.

WANT position as master mechanic or engineer. Experienced on both steam and electric drive, 8 years experience. Married, settled habits. Address No. 3449.

WANT position as superintendent of hosiery yarn mill. Have held such a position in several good mills. Now employed as overseer of card twisting and weaving in large mill. Would consider overseers' job at \$150 or more per month. Have had excellent experience in every mill department. Address No. 3450.

WANT position as superintendent. Now employed as general superintendent of two mills, but have good reasons for wanting to change. Would like to get in touch with some mill needing man who can get quality and quantity production. Address No. 4451.

WANT position as superintendent. Can furnish references as to character and ability. Address No. 3453.

WANT position as manager or superintendent in the Carolinas or Georgia. Am high class man who would not consider less than \$4,000 per year. I am not looking for a "good job" but wish to correspond with some mill that is not getting results and needs a first class manager. Address No. 3453.

WANT position as overseer of carding. My references are ample proof of my experience, character and ability to get results. Correspondence solicited. Address No. 3454.

WANT position as carder or spinner, or both in small mill. Have handled Nos. from 3s to 60s white and colored. Age 45, married. Best of references. Address No. 3455.

WANT position as overseer spinning, or would take second hand's place in large room. Have had 20 years experience in spinning, 5 years as overseer spinning and twisting. Can come on short notice. Good references. Address No. 3456.

WANT position as carder, or spinner, or both, thoroughly experienced in both departments. Now employed but can change on short notice. Address No. 3457.

WANT position as superintendent of hosiery mill. Thoroughly familiar with all phases of hosiery manufacture and can get excellent results. Good references. Address No. 3458.

WANT position as carder, or spinner, or both. Now giving satisfaction in good mill, but want a larger job. Experienced, sober and reliable. Address No. 3459.

WANT position as carder or spinner, or superintendent of small mill. High class man who can get real results. Now employed but will change for larger place. Address No. 3460.

WANT position as superintendent or overseer carding and spinning in large mill. Long experience, competent and reliable. References. Address No. 3461.

WANT position as superintendent or overseer spinning. Experienced man who has always given satisfaction over long period of years. Address No. 3462.

WANT position as master mechanic and chief engineer. Would like to connect with group of mills needing high class man. Familiar with both steam and electric drive. Address No. 3463.

WANT position as overseer of large card room, white or colored work. First class man in every particular and can furnish excellent references. Address No. 3464.

WANT position as superintendent of yarn mill, hosiery yarns preferred. Would like run down mill to pull out of hole. Age 48, married, long experience. Address No. 3465.

WANT position as overseer weaving. 25 years experience in weaving rooms, both white and colored work, such as sheetings, jeans, cotton flannels, chambrays, denims, tickings, satens, shirts, plaids and terry towels. Experienced on plain, Draper and Crompton & Knowles box looms, including magazines. Good references. Will go anywhere. Address No. 3466.

WANT position as overseer of spinning. Age 31, long experience. Will go anywhere to get good place. Address No. 3467.

WANT position as master mechanic and engineer. Training and experience qualifies me to handle work in competent manner. Especially good with electric plants. Good references. Address No. 3468.

WANT position as superintendent or overseer of carding or spinning in large mill. My references show long period of good service, good character and steady worker. Address No. 3469.

WANT position as superintendent or overseer spinning. Now employed and giving satisfaction, but want larger place. References furnished to show my experience and record. Address No. 3470.

WANT position as overseer of carding, or would take second hand's place in large mill. Age 35; 25 years experience; now employed as overseer but wish to change. Married and settled, good references. Address No. 3471.

WANT position as superintendent, carder or spinner. Now employed as overseer in large mill. Over 15 years experience as superintendent and overseer. Good references. Address No. 3472.

WANT position as overseer weaving, or second hand. Over 15 years in weaving, experience as fixer, second hand and overseer. I. C. S. training, can handle prints, drills, chambrays, sheetings, denims, etc. Best of references. Address No. 3473.

WANT position as overseer of spinning. Now employed as overseer, but have good reason for wanting to change. Long experience in spinning, can handle long or short staple cotton. Prefer mill in Georgia, but would consider place in South Carolina or Alabama. Excellent references. Address No. 3474.

WANT position as superintendent of yarn or cloth mill, or would take large card room in good mill. Now employed as superintendent and have been superintendent and overseer for 25 years. Excellent reasons for making a change. Fine references. Address No. 3475.

WANT position as superintendent of large yarn or cloth mill, or manager of smaller mill. Have a long record of efficient and successful service. Special experience in bleaching. Can furnish excellent references from a number of very successful mill officers under whom I have been employed. Address No. 3476.

WANT position as master mechanic. Am 39 years old and have had 20 years experience in mill machine work and engine rooms. Thoroughly competent man in every respect. Good references. Address No. 3477.

WANT position as superintendent, overseer of spinning or weaving. Can show my qualifications for either of above jobs if given an opportunity. Settled man of good habits. Address No. 3478.

WANT position as general superintendent, or agent for cotton yarn mill or plain cloth mill. Have been mill superintendent and manager for a long term of years and solicit correspondence with strong company needing a high class man to operate its plant on efficient and economical basis. A-1 references. Address No. 3479.

WANT position as overseer of weaving. Now giving satisfaction as weaver but want a larger place. References to show ability, character and experience. Address No. 3480.

WANT position as superintendent. Experienced on both plain and fancy goods and can give excellent references. Address No. 3481.

WANT position as superintendent or overseer of spinning. Now have charge of spinning in large plant, but have good reasons for wishing to change. Would like opportunity to submit my references. Address No. 3482.

WANT position as superintendent of yarn, cordage, or weave mill on white goods. Now employed as superintendent and have been on this job for the past 12 years. Good references as to character and ability. Address No. 3483.

WANT position as overseer spinning, spooling and warping, or would take second hand's place in large mill. Age 36, married, good manager of help. 20 years in spinning rooms, references as to character and ability. Address No. 3484.

WANT position as overseer of carding. Have had long experience in a number of good mills and can handle a card room in first class manner. Address No. 3485.

WANT position as superintendent or overseer of large carding or spinning room. Have been superintendent for last 12 years, long experience as overseer. Excellent references. Address No. 3486.

WANT position as superintendent or assistant superintendent, or carder or spinner in large mill. Have held present job as carder for 10 years and have charge of 2 card rooms. Will go anywhere for the right job. Fine references. Address No. 3487.

WANT position as superintendent of small mill or assistant superintendent in large mill. Have held present job as superintendent for many years and have given entire satisfaction. Excellent references. Address No. 3488.

WANT position as superintendent of small yarn mill, or overseer carding or spinning in large mill. Have had long practical experience and have completed textile course. Good references. Address No. 3489.

WANT position as overseer of carding. Now employed as second hand, but am capable of handling overseer's place. Practical man and I. C. S. graduate. Age 27. Married. Excellent references. Address No. 3490.

WANT position as superintendent. Now employed as such, but want larger job. Especially qualified for weaving mill on fine and fancy goods. Have successfully handled a number of large Southern mills. Fine references. Address No. 3491.

WANT position as superintendent of weave mill, or would take place as carder and spinner in large mill. With present company five years, last three as superintendent. Ten years as overseer carding and spinning. Address No. 3492.

WANT position as superintendent. Now employed as overseer with one of the largest mills in the South. Have been with same company for six years. By experience and training am qualified to handle superintendent's position. Can give best of references. Address No. 3493.

WANT position as carder or spinner or both. Now employed as overseer, but wish better place and can come on short notice. Excellent references as to experience, character and ability. Address No. 3494.

WANT position as master mechanic. Now employed. Long experience as master mechanic and engineer in good mills. Can handle either steam or electric drive. Good machine shop and repair man. Address No. 3495.

WANT position as overseer of carding. Competent, reliable man whose experience and training is reflected in ability to get results. Now employed. Good references. Address No. 3496.

WANT position as overseer of weaving. Experienced on both plain and fancy goods and all makes of looms used in South. Steady worker, good habits, good manager of help. Address No. 3497.

WANT position as master mechanic. Have had nine years experience as master mechanic, 20 years with steam and electric drive and mill machine work. Good references as to character and ability. Address No. 3497.

WANT position as overseer of spinning. Would take carding. Long experience in both departments and can give satisfactory references. Address No. 3498.

WANT position as overseer of cloth room. Have had over 30 years experience in some of the best mills in the South, and have handled practically every kind of goods made in Southern mills. Wish to correspond with mill needing thoroughly reliable man who can handle cloth room in efficient manner. References. Address No. 3500.

WANT position as master mechanic. Experienced, reliable man now employed, but wish a larger place. References to show long record of satisfactory service with a number of first class mills. Address No. 3501.

WANT position as engineer and machinist. Experienced on both electric and steam drive and am competent to handle machine shop and general repair work. Good references. Address No. 3502.

WANT position as superintendent of large yarn or cloth mill or manager of smaller mill. High class, efficient man with long experience as superintendent and manager and can get results. Excellent references. Address No. 3503.

WANT position as overseer of carding, or would take place as second hand in large room. Practical, experienced man of character and ability, good manager of help. Fine references. Address No. 3504.

WANT position as superintendent, or carder and spinner. Many years experience in all these positions in some of the best mills in the South. Excellent references. Address No. 3505.

WANT position as overseer of carding in small or medium sized mill, or second hand in large mill. Age 26; married; I. C. S. graduate; good references as to character and ability. Address No. 3506.

WANT position as overseer of weaving. Now employed in large mill and giving satisfaction, but have good reasons for wishing to change. Experience includes work on practically all goods made in the South. Good references. Address No. 3507.

WANT position as overseer of carding or spinning or both, or superintendent. Now employed as night spinning in large mill and giving entire satisfaction, but wish day work. References from past and present employers. Address No. 3509.

WANT position as master mechanic and engineer. Have had 12 years experience in steam and electric driven plant and can handle either in competent manner. Good references. Address No. 3510.

WANT position as overseer of weaving in mill on plain or fancy goods. Now employed, but can change on short notice. Experience and training cover a long period of years in a number of good mills. Good references. Address No. 3511.

WANT position as overseer of weaving. Practical man of long experience who is fitted to handle your weave room on efficient and economical basis. Good references. Address No. 3512.

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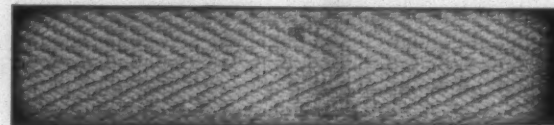
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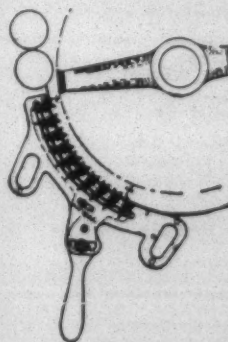
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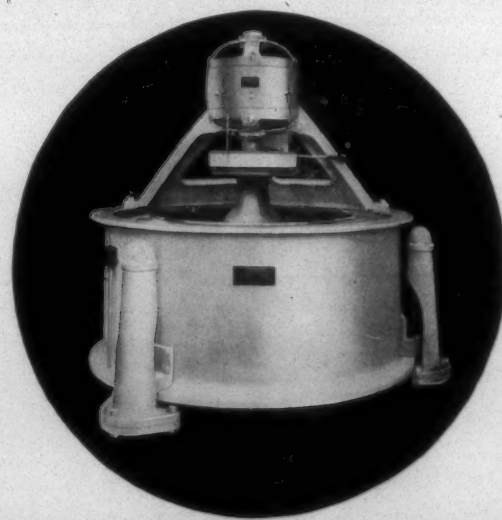
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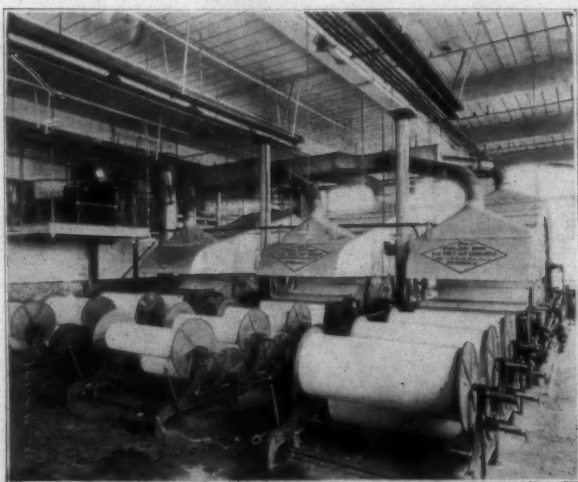


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